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Big Sky Clearwater

Published jointly by Montana Water Quality Division, Montana Water Environment Association, and Montana Section American Water Works Association

SPRING 1995

WATER QUALITY DIVISION

Water Conservation:

Is your 1995 Water Conservation Plan Updated and Ready?

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This publication welcomes articles of interest and random pieces of information regarding anything to do with water. If you have ideas or information you would like to share with other people involved in the water and wastewater field, please contact the Water Quality Division.

An article may consist of your thoughts and ideas about something you may have experienced, perhaps such information could help someone else in their day-to-day work. It could also be a technical article developed from research information and library resource material. If it has to do with water and you think it may be of interest, please send it to us (Attn: Editor) or give us a call at (406) 444-2406.

If you do not wish to continue receiving this publication, please send us your mailing label so we may remove it from our mailing list...thanks.

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Cover: *This issue of the Big Sky Clearwater is devoted to Water Conservation as many of our Montana systems will experience adverse conditions this summer or fall. Check your emergency drought plans and bring them up to date if need be. You'll be glad later that you took the time. Thanks, Rick Cottingham, Editor. Cover created by same.*

The *Big Sky Clearwater* is for water and wastewater operators across Montana. It is published twice a year by the Water Quality Division, of the Montana Department of Health and Environmental Sciences, in cooperation with the Montana Section of the American Water Works Association and the Montana Water Environment Association.

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MONTANA WATER OUTLOOK.... NOW!

By Rick Cottingham, Editor, Spring Edition

As we begin the 1995 our thoughts begin to turn from Holidays and friends to the duties at hand. We start to look ahead at what projects need to be completed before the demands increase and how we can better prepare our systems to handle the strains put upon them. Last fall we ran several articles on how much water was wasted and where. How we could educate and enlist our customers so they could help, us and themselves, by simple conservation techniques on their end. Finally we covered what enforcement tools were available in the event of a drought crisis. How to set up these programs and how to enforce them if necessary. Hopefully the moisture we experienced last fall will continue and enforcement won't be an issue. Its a fact of life that Montana doesn't have the potential resources that it did thirty years ago and that everyone needs to learn to conserve on this precious resource.

I'll attempt to explain in this article how forecasts for the state are formulated. It's also good to keep in mind the age old adage we have all heard, "If you don't like the weather in Montana, just wait awhile, it'll change". Well, my father used to tell me, "Don't go anywhere without a coat, this is still Montana". Unfortunately, these rapid changes don't always show a significant addition to the streamflow forecasts. The majority of the Montana annual streamflow comes from snowfall which accumulated during the winter and early spring in the mountains of each watershed. As the snow accumulates it is monitored closely to estimate runoff potential that comes with the spring thaws. Predictions are made continuously from samplings at strategic sites in these drainage basins. Accumulation by moisture content, temperatures, soil moisture content, and instream flows are combined with the snowpack information to forecast late spring and early summer streamflows. The National Weather Service and Soils Conservation service prepare these forecasts. These forecasts are very important to systems that depend on surface water runoff for their water needs.

Data for this research is obtained both manually and by automatic sampling methods. The manual readings to obtain snow depth and water content information are taken on snow courses throughout the winter and early spring. Also, percentage of moisture content,precipitation and temperatures are gathered on a daily basis. Both monthly and daily information is then used to determine runoff predictions.

Inaccuracies occur from two sources: first, the inability to predict or know what moisture will follow or what the weather conditions will be, and secondly, error in the methods used in predicting what flows might be anticipated, these are the variables which can't always be counted on. As the winter progresses and spring begins, the projections become more accurate because there is more information to base projections on.

This past fall weather systems got the high mountain snowpack off to a terrific start. Most drainage basins have accumulated moisture contents twice to three times that of normal average years. However, near the end of the year the patterns changed and these weather patterns are staying primarily west of the continental divide. This has meant very little significant additional snow east of the divide.

Most of the accumulated moisture at the first of the year was a bit above average and 66% greater than this time in 1994. The exceptions to this are the Madison Range which is 75% above average and the Bearpaw Mountains near Havre where accumulation is 80% below normal.

Major reservoir holdings are 26% below average and 35% below last year. Most irrigation reservoirs are below, to well below, their normals due to the hot, dry weather last summer which created large water demands.

Streamflows at this time are about average and are about a third above last year flows at this time.

What's to come? That will depend on the weather patterns, continued snow accumulation, moisture content of that accumulation, and the temperatures associated with these trends. Predictions show we're off to a great start. But, if these weather patterns remain the same and we accumulate at the rate we saw in December, we're headed for a record drought season for the summer and fall, of 1995.

What you can do is prepare you systems and your customers for what might be coming. If it doesn't, all you did was educate them in water conservation. The less treated the less cost, the less their water bills will reflect. They need to know that what they can conserve on is a direct reflection on what they pay.

So get your systems in shape for the summer and get your customers educated for conservation. Work safe and have a good year.

If you have implemented any conservation programs and feel you would like to share them with other systems of Montana, please contact either Bill Bahr or myself, at the number below, we'll print these stories or anything else appropriate in the next issues of the Big Sky Clearwater.

If you have any questions or need additional information on how you and your customers can conserve water, please contact the Water Quality Division at 406-444-4549.

MONTANA SECTION
AMERICAN WATER WORKS ASSOCIATION

NEWS BRIEF

by Dan Fraser & Donna Jensen

On February 5 and 6, 1925, a small group of men met in Helena's relatively new State Board of Health Building. The purpose of their meeting was to find some method or organization through which they would be able to "improve the services they offered the public" as operators and managers of public water systems. The decision of these men was to seek affiliation with the American Water Works Association because the goals of the AWWA: "the enhancement of knowledge of the design, construction, operation and management of water and sewerage works and the encouragement, by social intercourse among its members of a friendly exchange of information and experience," were shared by those early water supply professionals.

By late summer in 1925 the American Water Works Association had 23 Montana members. This was enough to qualify us as a section and we were notified of our acceptance by the AWWA Secretary on August 23, 1925.

Since that time the Montana Section of the American Water Works Association has been a leader in ensuring improvements to the Montana water supply industry. We now have more than 200 members and although we are one of the smallest sections of AWWA, we have equal say as all other AWWA sections in matters affected by AWWA's Board of Directors. We are members of an association which has a great deal to be proud of, and which has truly been instrumental in improving the quality of life in Montana.

There is still ample need to "improve the services offered to the public". Though waterborne disease is no longer a leading cause of death in Montana, the threat is still here (think *Crypto.*!) Additionally, we are now facing the more poorly understood (but just as real) long-term threats from manmade chemicals and naturally occurring radon gas.

AWWA is committed to three guiding principles. The first is that the public has an absolute right to a safe and sufficient supply of drinking water. The second is that customer satisfaction and support will result if the public has ongoing involvement in planning, policy development and regulatory issues involving safe drinking water. Third, because water is the basic element of life, AWWA is dedicated to helping assure that this vital resource is managed for the greatest good of people and the environment, and that all segments of society have a voice in this process.

These guiding principles boil down to very concrete services provided by AWWA through membership in the Montana Section. Monthly publications from AWWA update members on management and operational techniques, legislative changes, public perceptions of the drinking water industry and other pertinent issues.

Locally, the Montana Section is actively involved in the following:

- The Education Committee sponsors educational seminars and teleconferences to bring National experts to our area at affordable costs.
- School education and teacher manuals are available at no cost to enhance your efforts to educate the public about just what it takes to provide a safe and sufficient supply of water.
- Our Human Resources Committee provides education and support for our own betterment as humans, meeting our needs with a personal yet professional emphasis.
- The Water For People Committee successfully completed an assistance project in Honduras and actively pursues additional activities to bring basic water service to the needy in that nation.
- The Public Information Committee supports National Drinking Water Week activities to promote consumer education and the positive aspects of our often-criticized industry.
- The Legislative Committee actively responds to Safe Drinking Water Act issues on the federal and state level.
- The Host City and Program Committees plan and implement the annual joint conference with Montana Water Environment Association, matching topics to supplier, engineer and regulator interests.

A lot goes on in our Section and there is a lot more to be done. Contact any of the officers or the Executive Secretary listed below to find our how to become more involved.

If you are not a member and are in need of a better way to stay on top of all aspects of the drinking water industry, membership in AWWA is what we recommend. Start with an Affiliate Membership if you are not interested in technical papers and *Journal AWWA*. Affiliate membership meets the needs of operational staff who just want the essentials for anticipating and adapting to the unavoidable changes in our field.

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NEWS

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FOR IMMEDIATE RELEASE

CONTACT: Laurie Klappauf
1-800-624-8301 ext. 545

New financial publication assists small water systems

A new publication to help small drinking water systems deal with complicated financial issues has been started by the National Drinking Water Clearinghouse (NDWC).

Water Sense, published quarterly, offers financial information and help to people involved in providing safe drinking water to small communities.

Water Sense debuted in December 1994 as an insert to another NDWC publication, *On Tap*, which provides information on technical and managerial issues pertaining to small systems.

"*Water Sense* is unique—dedicating itself to coverage of finance issues facing small water and wastewater systems," says Sanjay Saxena, NDWC program coordinator. He says an important component of this publication is helping communities stay informed about how and where to go for project financing.

Future *Water Sense* issues will include information on:

- various low-interest loan programs;
- alternative financing mechanisms;
- events in Washington that impact small drinking water systems; and
- organizations, publications, and training programs that provide assistance with drinking water finance.

"We try to present the information in plain English," adds Laurie Klappauf, *Water Sense* editor. "We also use graphics to better explain a program or process, and we include references and contacts so readers can get further information."

Funded by the U.S. Department of Agriculture's Rural Utilities Service, the NDWC assists small communities by collecting, developing, and providing timely information relevant to drinking water issues. For a free subscription to *Water Sense*, or for more information about NDWC and its services, call 1-800-624-8301.

3rd Annual Spring Water School

Attn: Water and Wastewater Operators

March 15, 16 & 17, 1995
Miles City, MT

The 3rd Annual Water and Wastewater Operator School will be held in Miles City , Montana March 15 - 17, 1995. This seminar will be designed for entry level AND experienced operators and managers. Topics and presentation will specifically target professional growth of the small system operator or manager. It will feature an array of topics from well subjects, distribution systems, lagoons, to process control of water treatment and activated sludge facilities.

Preventive maintenance, safety, and current regulations are other examples of topics to be covered. Basics of surface water treatment, well systems, and distribution operations will be emphasized. Special Operator Study (SOS) classes will be offered during the day for operators taking the certification exam on Saturday. There will be no CEC's offered for these classes as Operator's In Training are not required to earn them. This school will feature speakers from the water Quality Division, Local Governments, and the professional community. Advanced operators are asked to attend other seminars, such as Rob Renners, Advanced Surface Water Treatment in Helena in May.

CEC's	1.7
Fee:	$75.00
Sponsor:	METC (454-2728)
Date:	March 15 - 17, 1995
Location:	Miles City, MT

Status of Phase II & V Organic Chemical Monitoring Waivers

Craig Pagel, WQB Engineer

The MDHES has completed a proposed Monitoring Waiver Program for non-transient non-community and community public water supplies. The proposed Monitoring Waiver Program has been submitted to the EPA Region VIII office in Denver. The EPA has not yet approved the waiver program, and public water suppliers should be aware that monitoring waivers will not be available until the EPA has granted final approval. The proposed Monitoring Waiver Program is summarized below.

The Monitoring Waiver Program includes **statewide** monitoring waivers, and application procedures for **use** and **susceptibility** waivers. **Statewide** waivers would be administratively issued by the MDHES, and an application would not be required from public water suppliers. Public water suppliers would complete an application process and vulnerability assessment before the MDHES could review and consider approval of **use** and **susceptibility** waivers.

Public water suppliers would not be required to sample for chemicals covered by the **statewide** monitoring waivers, which include: endothall, diquat, glyphosate, dioxin, ehtylene dibromide (EDB), dibromochloropropane (DBCP), asbestos at the source, and cyanide. In addition, small public water supplies serving less than 3300 persons could fulfill the organic chemical baseline monitoring requirements by completing one round of sampling with no detects of organic chemicals.

Use and **susceptibility** waiver applications would be available for Phase II and V organic chemicals not specifically included in **statewide** monitoring waivers. The application process for **use** and **susceptibility** waivers would involve considerable research and information provided by the public water supply in order to demonstrate sources are not vulnerable to potential organic chemical contamination.

Public water suppliers would need to compare the time needed to prepare an application with the cost benefits that may be realized if an organic chemical **use** or **susceptibility** waiver were granted. A vulnerability assessment must demonstrate that all the organic chemicals analyzed by a particular analytical method (i.e., EPA Analytical Methods 524.2, 531,1, 515.1, 505 and 525.1) are eligible for a monitoring waiver before an analytical method could be removed from sampling requirements. Applications from public water systems having unresolved compliance issues may not be considered for **use** and **susceptibility** waivers; therefore, public water suppliers need to be sure of their compliance status before spending significant time on a waiver application.

Use and **susceptibility** waivers must be issued in writing by the MDHES, specifying the organic chemical analytical methods and the monitoring period for which the waiver applies. Public notification would be required if any organic chemicals are excluded from sampling requirements by **use** or **susceptibility** waivers.

WATER POLLUTION PREVENTION EDUCATIONAL BROCHURE

By now, you may have seen the water Quality Division's educational brochure entitled, "Water Pollution Prevention--What You Can Do. . ." The brochure explains the basic concept of point and nonpoint source pollution and discusses how our daily activities can impact water quality. It lists common sense steps that people can take to reduce water pollution (including water conservation), and includes a household pollution prevention guide to help promote sound waste management practices.

The Water Quality Division has distributed 8,000 copies of the brochure to cities, counties, towns, and sewer districts across the State as a public education tool. Additional copies are available to communities for use in public awareness campaigns and "bill stuffer" programs. For more information, please contact Pat Burke of the Municipal Wastewater Assistance Section, (406) 444-7343.

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1995 JOINT MWEA/AWWA CONFERENCE
GROWING PAINS, GROWING GAINS

The 1995 Joint MWEA/AWWA Conference will be held in Great Falls from May 3 through May 5, 1995, and it promises an excellent program. The conference theme, "Growing Pain, Growing Gains" will focus on issues that have impacted large and small communities across the State. Program sessions include: Water Treatment; Industrial, Mine, and Hazardous Waste Treatment; Municipal Management; Public Education; and a Vendor Exhibition. The Preconference Session will cover the new Nondegradation Rules and emerging treatment technologies.

There has been an excellent response to the Call for Papers, but there are still a few openings in the program. If you would like to present a paper, but have not already contacted the program committee, please call Bill Bahr of the Montana Water Quality Division at (406) 444-5337, at the earliest possible date.

Conservation....Conserving Resources ...and Conserving Money!

By Rick Cottingham, Water Quality Specialist

America employs enormous amounts of water. In 1985 alone we used 400 billion gallons/day of fresh and saline water. This equates to each one of us using 1650 gallons/day at home, offices, schools,factories, and on the farms and ranches. This is a 10 percent savings over figures generated in 1980. This savings was due in part from educating the people of our communities.

For 100 years the United States has been a very water rich country. Now as then, the water actually available for use is limited, unevenly distributed, and often being stretched to serve more people with bigger thirsts. We aren't really running out of water, but we all need to do what we can to conserve and use it more wisely. The remainder of this article will be used to pass on some valuable tips for saving water and money in our homes and communities.

Most Montana communities have experienced water shortages of one type or another. Whether its from high demands or from breakdowns in a treatment facility we still had to conserve for some period of time. It is harder for utilities to meet all of the demands of the growing populations and the industries that go along with it.

In some parts of the state, this increased demand has produced local water shortages that will limit future development. Other areas of the state have an increasing problem developing and maintaining a safe, adequate, and affordable supply.

Spend Wisely

Maybe the first step to conserving is to have an idea what the expenses are that go along with just the household chores. When you were young you were taught to shop for sales, you may find three different prices for the same stereo in your town. Why pay $100 when you can get the same unit for $62.50 down the lane?

Water is the same principle, just a different exchange. Why spend 20 gallons on a 10 gallon chore? Flushing the toilet takes 3 to 6 gallons, is one kleenex worth 6 gallons?

Showers tend to be the luxury. A short one uses 20-30 gallons of water; an average bath is 30-40 gallons of water. Perhaps quicker showers with the water turned off while lathering up?

Use only full loads in the 15-20 gallon/cycle dishwasher. Washing dishes by hand saves considerable amounts, unless the rinse water runs continually. Usage is saved dually in these areas because what you don't use, you don't have to heat.

Leaking from the billfold.

The silent toilet bowl leak is a drain on your cash resource as well. This has been targeted as the single greatest if undetected. These account for up to 90 percent of the complaints about excessive water use changes. These can account for, on the average 60 gallons per day. The cause is a poorly seated tankball ($4), worn valves ($2.50), or minor adjustments which cost nothing. To check this, add a few drops of food coloring to the tank and see if it shows up in the bowl, if it does, there's a leak.

Stop all drips.

"It's just a small drip", ever heard this one? No such thing when your paying for it. The experts say a 1/16 of an inch can account for 10 gallons a day. Replace all worn washers and seats. if you don't replace the seat then dress it when you replace the washer. The hydraulic pressure of the water leaking through actually cuts a notch in the soft brass seat. These take only a few minutes, a wrench, and a screwdriver to change. Calcium built up around the ball stopper in the toilet tank is easy to clean.

Shut off the hose.

Letting hoses run while playing with the children, watering the lawn, or washing the car is an expensive habit. The average 1/2 inch garden hose disperses 600 gal/hr and a 3/4 inch about 1900. Overnight it wastes what an average family uses in two months.

Don't let faucets run.

If your in the habit of letting the water run while shaving, rinsing vegetables, or waiting for a cold glass of water, stop. Keep a jug of water in the refrigerator. Fill the sink while shaving or rinsing produce. You'd be surprised at the water saved. You'll see it on the next month's bill.

Check your system regularly.

Inspect all of your water taps and hose connections. Turn off faucets to washing machines, dishwashers, and any other water using equipment when they aren't in use. Shut the garden hose off at the faucet, not at the nozzle. Shut off all outside taps when away on vacation if no one is there to monitor usage.

Displacements in the tanks.

The toilet uses considerable amounts when flushing. Displace volume with sand filled jugs, bricks or just rocks. This lowers the amount used to flush. There are dual handled devices available that utilize one for flushing liquids and one for flushing solids. Be sure that items placed in the tank don't interfere with the mechanical parts of the toilet.

Pressure reducing valves can be installed on a homes supply line. These save water in the entire house. Flow regulators on showers and sinks. There are water conserving fixtures that can be installed when remodeling or building a new house.

Throughout our entire Community.

We can all have a part in conserving on the city level. We can all control pollution. We can all eliminate wasteful usage. We can all learn what we can do to encourage multiple usage,reuse of our cities water, and recharge of our water resources.

Better management is the key to saving millions of gallons of water at the local level. Think how much can be saved by this at the national level. In agricultural areas, water may be saved by better irrigation techniques, controlling seepage, and controlling the evaporation of our reservoirs. Cities can save by installing meters and repairing leaks. A water accounting program by your utility will tell you if the water your treating is what your selling.

Weighing out the ideas of how to best use water must be made in times of shortages. Wise water usage and conservation, beginning in the home,industrial an agricultural communities will help insure that we have the water we need in these times of growing needs.

For more information on how you and your community can save water resources, please contact the Water Quality Division at 406-444-4549.

SAMPLING LOCATIONS FOR VARIOUS RULES

Carol Stuckey, WQD

As a reminder to Public Water Supply systems, here is a summary of sampling locations for various Drinking Water Rules.

TOTAL COLIFORM RULE

Community water systems should sample according to their sample site plan which should be on file with the Water Quality Division. For Non-Community systems with more than one service connection, the sample location should rotate through the different connections. For Non-Community systems with only one service connection but many taps, the sample site should rotate through the taps suitable for sampling as described below.

Samples should be taken from a cold water tap. Other recommendations for selecting a sample site include: a tap without leaks; not a mixing or swivel type tap; upstream of a softener, carbon filter, or cistern serving a single service connection; and from a tap where all faucet attachments (aeration screens, hoses, etc.) have been removed.

This second sentence of "recommendations" is truly that - it is desirable to meet these guidelines but it is not essential. For example, the argument can be made that the coliform sample should be taken downstream of the softener or filter because that water represents the water that is consumed. If the softener or filter is introducing contamination to the water that is consumed it seems that it would be beneficial to know that. If bad samples start to show up in a system that sampled at a point contrary to these recommendations, then the repeat samples, etc. should include sampling in accordance with these recommendations in order to try to isolate the source of the contamination.

PHASE II AND V

Each entry point for each source must be sampled. If the sources supply the distribution system from different point, then each source has its own entry point and each must be sampled. If there is treatment, such as chlorination, filtration, or softening, then the samples must be collected after the treatment. If the sources are mixed before anyone can drink the water, then an entry point is any place after the sources are mixed and treated but before the first consumer. Each active entry point must be sampled. When samples are sent in to laboratories each entry point should be identified by listing all of its water source(s) so that proper sampling credit can be given to the system.

LEAD AND COPPER

Community and Non-Transient Non-Community water suppliers are required to collect lead and copper tap water samples to determine if the source water is corrosive. A corrosive source water can cause these metals to dissolve and "go into" solution, thereby being consumed by customers. A non corrosive water source will not cause consumption of these metals.

Lead and Copper tap water samples must be collected from sites in the following order to make up the required number of tap sample sites:

TIER 1 SITES:	Single family homes containing copper plumbing installed/modified between 1982 and 1987, or single family homes containing lead service or lead house-hold piping (installed at any time).
TIER 2 SITES:	Multi-family, or other buildings containing copper plumbing installed/modified between 1982 and 1987, or multi-family, or other buildings containing lead service or lead house-hold piping (installed at any time).
TIER 3 SITES:	Single family, multi-family or other buildings served by copper plumbing installed/modified before 1982, or sites served by piping with lead goosenecks or lead pigtails.
NON-TIER SITES:	Single family, multi-family or other buildings not served by lead or copper containing piping.

The concept is to collect cold water samples which represent the water persons might consume first thing in the morning. The Rule requires that the samples are collected from a tap which has not been used for at least 6 hours. These taps should not have the screens removed prior to sampling. Disturbing the pipe threads to remove the screen can cause false high results. Also cause water to become more corrosive. The individual collecting the sample should be instructed to collect the sample from a tap which is not a mixing type tap. The use of a typical kitchen mixing tap can cause hot water influence which can also cause false high results.

Individuals will need to refer to their sample information package, mailed to them by the DHES, to determine how many tap samples they must collect for lead and copper.

STOCKETT GETS STATE-OF-THE-ART TREATMENT

The Town of Stockett, with about 290 people and 90 homes, has been plagued by wastewater problems for decades. The tight soils in the area and the lack of physical space precluded the use of individual, on-site wastewater systems in many parts of town.

Over the years, several makeshift community wastewater collection systems had been created in an attempt to move the pollution problem away from the homes. One of those systems discharged to a cesspool near the center of town. The poorly treated effluent from the cesspool then surfaced, creating a very smelly mess and a threat to public health. Several other community and individual wastewater treatment systems discharged septic tank effluent directly to Cottonwood Creek, which flows through the center of town.

In 1991, the Montana Department of Health and Environmental Sciences' (MDHES) Water Quality Bureau (now division) issued an administrative order to the Town of Stockett and Cascade County to clean up the mess. The bureau, through its Municipal Wastewater Assistance Program, gave the town a $17,250 planning grant to help get things started. Town officials have worked diligently over the past three years pursuing various grants and loans to put together a financial package the townspeople could live with.

Construction of the new $1.2 million wastewater collection and treatment system--using $634,720 through MDHES from an EPA construction grant--began July 7, 1994, and is now essentially complete.

The project has an innovative septic tank treatment/collections system, followed by final treatment in a two-cell facultative (non-aerated system) lagoon and disinfection using ultraviolet radiation. Ultraviolet radiation is state-of-the-art treatment for both drinking water and wastewater disinfection.

The project engineer responsible for planning, design and construction management is Neil Consultants of Great Falls.

Thanks to a lot of hard work and cooperation, the adverse impacts to public health and the environment posed for many years by the wastewater situation that existed in Stockett are gone.

LOCAL WATER QUALITY DISTRICTS IN MONTANA

Two of the most important issues of the 90's are water quality and the economy. People are setting up projects around the state that protect watersheds, rivers or groundwater supplies. All the project backers are facing today's economic realities and wondering how to find a source of continued funding for their long-term projects.

Montanans know that sound economic development in a vibrant, growing community depends on a clean and healthful supply of water. In 1991, the Montana legislature passed a law allowing counties to form districts with the sole purpose of protecting, maintaining, and improving water quality. A "Local Water Quality District" may set fees to fund its water quality program. The district can usually multiply its resources by using the fees as "matching funds" to apply for grants.

Lewis and Clark County set up the first local water quality district for the Helena Valley watershed in 1992. A year later, Missoula County set up a district covering the Missoula Valley Sole Source Aquifer. Gallatin County has announced its intent to form a district covering the Gallatin Valley at Bozeman. Silverbow County and Butte are planning a district at the headwaters of the Clark Fork River. In addition, four other counties are in the preliminary stages of forming districts along the Flathead, Bitterroot, Yellowstone, and Missouri Rivers.

The Lewis and Clark County Water Quality Protection District (L&CWQPD) has a budget of over $100,000 from fees and grants to implement its water quality program. The program covers monitoring for water quality and quantity, inventorying stormwater runoff, setting up wellhead protection areas, and educating citizens on proper pesticide use and disposal, household hazardous waste disposal, and recycling used motor oil. The district also is working with the Helena National Forest on a watershed management plan for the Tenmile Creek drainage.

The Missoula Valley Water Quality District has a budget nearly four times greater than the L&CWQPD. The funds come from fees, grants and project funds of various state and local agencies. Its water quality program covers many of the same activities as L&CWQPD; but, in addition, it administers the Missoula Valley Aquifer Protection Ordinance. District personnel perform integrated inspections of facilities looking at underground storage tanks; water and sewer connections; hazardous material storage, generation and disposal; solid waste disposal; underground injection wells; and wellhead protection. The district also works with the state to enforce the Montana Water Quality Act.

If you are interested in learning more about Local Water Quality Districts, contact the Water Quality Division of the Department of Health and Environmental Sciences, P.O. Box 200901, Helena, MT 59620-0901 or call 406-444-5492.

EPA O&M EXCELLENCE AWARDS

Are you doing an excellent job of operating and maintaining your wastewater treatment plant? Does anyone notice? Have you applied innovative solutions to problems you have at your plant that weren't foreseen by the builders? Are you constantly working to improve your plant to make it the outstanding facility you want it to be? Does your wastewater facility reflect your professional attitude and the care you bring to it?

If so, please apply for an EPA O&M Excellence Award. Applications can be obtained from Bill Bahr at the Municipal Wastewater Assistance Program at the Department of Health and Environmental Sciences Water Quality Division in Helena. Call (406)444-5337 or write to Bill Bahr, 1400 Broadway, PO Box 200901, Helena, MT 59620-0901.

Annually, these awards for excellence in operating and maintaining wastewater treatment facilities throughout the nation are presented at the national Water Environment Federation conference. Recently, Chinook received the highest award in that size category.

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NATIONAL OFFICER TO ATTEND JOINT CONFERENCE IN MAY !!!

C. Dale Jacobson, Treasurer of the Water Environment Federation, will be a featured speaker and honored guest at the MWEA/MSAWWA joint conference in Great Falls in May.

Jacobson is a principal at Jacobson Helgoth Consultants, Inc., in Omaha, Nebraska. He is an active member of the Nebraska Water Environment Association, and is currently involved with WEF's Hazardous Wastes and Long Range Planning committees. The NWEA honored Mr. Jacobson with its Arthur Sidney Bedell Award in 1993 for outstanding contributions to Nebraska's water environment.

Jacobson is a Diplomate in the American Academy of Environmental Engineers and is a member of the American Public Works Association and the American Water Works Association.

THE MISSOULA EXPERIMENT

The Missoula Wastewater Treatment plant has been attempting to remove excess nutrients using the plant's biological process for the past several months. This is unusual because the plant was not designed for this purpose. Nutrients, primarily nitrogen and phosphorous, can have detrimental effects on rivers, lakes and streams if they are present in elevated concentrations. Wastewater treatment plants are point sources for both nitrogen and phosphorous that add to the naturally occurring levels of nutrients in water systems.

Treatment plants can remove both nitrogen and phosphorous through mechanical and chemical systems. The chemical and equipment costs can be prohibitive, and, often, the harm to the environment is weighed against the cost of preventing the impact. In the Clark Fork river system, nutrient enriched waters have yielded significant algae growth and eutrophication, both of which are considered to be harmful to the water environment.

Some wastewater treatment plants are specifically designed to remove nutrients biologically, such as the new facility at Kalispell. It is an advanced treatment plant built around the biological nutrient removal (BNR) concept. Constructing this type of facility to replace an existing capable conventional activated sludge (CAS) plant, however, may not be financially effective.

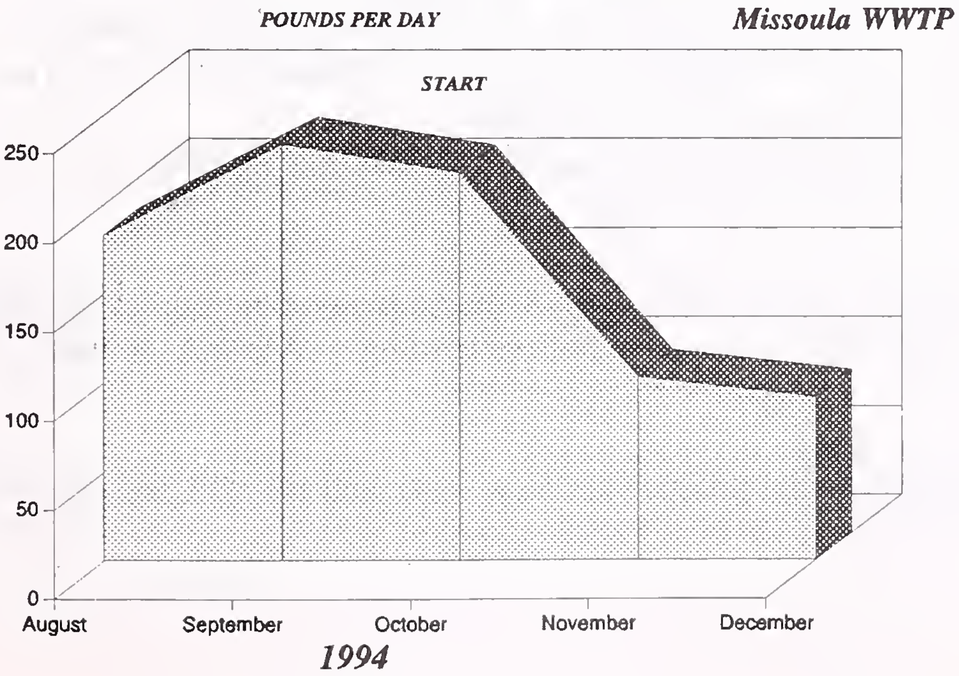
Tim Hunter, Missoula Wastewater Division Superintendent, has attempted to create a BNR process within the confines of the typical CAS plant at Missoula. The plant has eight aeration basins, and, thus, has some flexibility in creating the zones necessary for nutrient removal. Hunter's goal was to denitrify the harmful nitrates, taking them out of the discharge stream, and releasing nitrogen gas to the atmosphere, where it is found in abundance and harmless to the water culture.

Hunter turned off the supplied air to the first two cells of his activated sludge biological portion of the plant, creating an anoxic zone where no free oxygen is present. The chemically bound oxygen in nitrates is biologically converted by bacteria in the two cells, yielding the nitrogen gas. Removing the dissolved nitrates in the plant means that fewer nutrients end up in the river and water quality is improved.

The plant's operation has been stable and successful in this mode for the past few months. Nitrate levels have indeed decreased as expected. The surprise of this experiment, however, has been the lowered levels of phosphorus in the discharge as well. To get a similar phosphorous reduction, a third, anaerobic, zone needs to be present in the system, too. Since the plant was not set up to create this zone, the phosphorous reduction, or luxury uptake of phosphorous, has been an unexpected bonus.

As a result, the Missoula WWTP has turned out an effluent with significantly lowered levels of both nitrogen and phosphorous. This modified process has also lowered Total Suspended Solids (TSS) and Biochemical Oxygen Demand (BOD) levels in the effluent allowing the Missoula WWTP to decrease the impact the City of Missoula has on the Clark Fork river.

Phosphorous Reductions



MONTANA SECTION AWWA DIRECTORS REPORT
GERALD L LUKASIK, P.E.
MSAWWA NATIONAL DIRECTOR

The winter Board of directors meeting will be held January 21 through 23, 1995, in Tampa, Florida. There will be a full agenda for this meeting, the high points being as follows:

1. Election of Officers
    - A. President-Elect (The Politics are Furious)
    - B. Five Vice-Presidents
    - C. Director-At-Large
2. Revision of the Strategic Plan to include:
    - A. Enhanced Data Collection
    - B. Adoption of a Five Year Planning Cycle
    - C. The Implementation Plan to Have Close Links to the Strategic Plan, a Better Technical Description of the Implementation Plan and Year End Assessment of Each Program of the Implementation Plan.
    - D. A Tight Relationship Between the Strategic Plan, Implementation Plan and Budget.
3. Wastewater Reuse Policy
4. Governing Documents Revisions Regarding Structure of the Councils
5. Environmental Association Attacks on Water Industry
6. Source Water Protection
7. AWWA/AWWarf Consumer Attitude Survey
8. Water for People
9. 1995 Budget
10. New Business
    - A. Volunteer Travel Policy
    - B. AWWA Affinity Credit Card Program
    - C. Mexico Section Member Dues

A consent agenda will be handled by the Board with a single motion. Among the items are:

1. AWWA Governing Documents Revisions
2. Position Statements
    - A. BAT
    - B. Bottled Water
    - C. Home Water Treatment Devices
    - D. Use of Lead Materials in Drinking Water Systems
3. Continuation of the Engineering Design Conference on a Two Year Cycle
4. Approval of a Water Re-use Conference
5. Approval of Atlantic Canada and Ontario Section By-laws
6. Approval of AWWA Standards

This is the start of my second year as Director of the Montana Section. The experience has been one of learning, but has also been very enjoyable and rewarding. AWWA is made up of many wonderful, dedicated people.

May you all have a very happy and prosperous New Year and we will see you in Great Falls in May.

1995 ANNUAL CONFERENCE
MSAWWA & MWEA
"GROWING PAINS - GROWING GAINS"

MAY 4 & 5, 1995

HERITAGE INN - GREAT FALLS, MONTANA

REGISTRATION

Admission to all meetings will be by registration badge only. Make sure you register so you can attend all meetings.

PRECONFERENCE SEMINAR - May 3 $75

"Wastewater Treatment for the Future"

Speaker: Dr. George Tchobanoglous

University of California - Davis

8:30 - 9:00	Registration
9:00 - 12:00	Presentation
12:00 - 1:00	Lunch (included in fee)
1:00 - 4:00	Presentation

CONFERENCE - May 4 & 5

Thurs:	7:00 - 8:30 a.m.	Registration
	8:30 - 4:30 p.m.	Presentations
Friday:	8:00 - 8:30 a.m.	Registration
	8:30 - 1:00 p.m.	Presentations

Member, General Registration: Member # ________ *Includes two luncheons, banquet, and entertainment*	$85
Non-Member General Registration: *Includes two luncheons, banquet, and entertainment*	$95
Spouse's Registration: *Includes two continental breakfasts, banquet and entertainment.*	$25
Life Member Registration: *Includes 2 luncheons, banquet, and entertainment*	$60
One Day Registration:	
Member #________	$60
Non-Member *Includes one luncheon*	$70
Student Rate: *Does not include meals.*	$20

Additional Luncheon Tickets:

Please indicate number _____ @ $10 = $_____

Thursday _____ *Friday* _____

Additional Banquet Tickets:

Includes banquet and entertainment.

Please indicate number: _____ @ $25 = $_____

PLEASE CIRCLE AMOUNTS INCLUDED

TOTAL AMOUNT OF CHECK FORWARDED: $_____

If you have guests, please register them and obtain tickets.

CONTINUING EDUCATION CREDIT

Continuing education credits are offered for attendance at the conference. See envelope in registration packet.

.55 CEC's Pre-Conference; .70 CEC's Conference

Non-Members joining now please enclose completed membership application and one year's dues; then register as a member.

ALL REGISTRATIONS POSTMARKED BY MARCH 31st, 1995 WILL BE ELIGIBLE FOR AN EARLY BIRD GRAND PRIZE DRAWING!!

☐ Check if interested in playing golf Wednesday, May 3, 1995. Tee time 1:00 pm.

Please Make Check Payable To: MSAWWA/MWEA and mail it along with the following information to:

MSAWWA & MWEA
ANNUAL CONFERENCE

C/O Don Allen & Associates
P.O. Box 642
Helena, Montana 59624
Phone (406) 443-7531 Fax (406) 443-2439

Name: ____________________
(Last) **(First)** **(Initial)**

Title: ____________________

Organization: ____________________

Mailing Address: ____________________

____
(City) **(State)** **(Zip Code)**

Phone: ____________ **Fax:** ____________

Spouse/Guest Name (if attending): ____________________

Membership Application-1994

☐ Check Here If Renewing

1

Send Completed Application and Payment to:
WEF, Financial Management
601 Wythe Street • Alexandria, VA 22314-1994, USA

Association Choice: (Please print or type)
MT MONTANA WEA
Select one from the list on back of this form.

For more information, call 1-800-666-0206 in North America or 1-703-684-2452 outside or FAX 703-684-2492

Use this application to join the Water Environment Federation and your local Member Association. Simply complete this application and return it to the address above. Along with your monthly publications, you are also entitled to group insurance, technical assistance, discounts on technical publications, conference registration and much more!

2

First Name, Middle Initial (11) Last Name (16) (Jr., Sr., etc.) (3)

☐ Business Address or ☐ Home Address

WEF ID# ______ (If renewing membership)

Business Name (if applicable) (30)

Street or P.O. Box (30)

City (18) State (2) Zip Code - (9) Country (12)

Telephone – Home - - (10) Business - - (10) FAX (if applicable) - - (10)

3

Please refer to facing page when completing this section.

Employer Code (2) ______ Other (please specify)

Job Title Code (2) ______ Other (please specify)

Environmental Focus (2) (2) (2) (2) (2) (2) ______ Other (please specify)

4

WEF Sponsor (Optional) (20)

Sponsor's Member I.D. Number (7)

Source Code (2) (For WEF Use Only)

5

Membership Categories: Choose one membership category and fill in the appropiate dues.
Note: Retired? Call the WEF Member Services Center at 1-800-666-0206 to find out about our retired membership category.

☐ Active

For individuals involved or interested in the advancement of knowledge pertaining to water quality.

Dues	$70.00
Dual*	$ 5.00
Select ONE	Included
☐WE&T or	
☐Water Environment Research	
Highlights	Included

Additional Publications (See box below)

Periodical Code	Cost
______	$ ______
______	______
______	______
______	______
______	______
TOTAL	$ ______

☐ Operations Division

For individuals working in,or responsible for, the operation of one or more wastewater collection, treatment or laboratory facilities, or for facilities with a daily flow of <1 mgd or 44 L/sec.

Please indicate type of membership below:
☐Individual ☐ Organization/Agency

Dues	$ 40.00
Dual*	$ 5.00
Select One:	Included
☐Operations Forum or	
☐Water Envionment Laboratory Solutions	
Highlights	Included

Additional Publications (See box below)

Periodical Code	Cost
______	$ ______
______	______
______	______
______	______
______	______
TOTAL	$ ______

☐ Student**

For Individuals enrolled at least half-time in a college or university.

Dues	$22.00
Dual*	$ 5.00
Select ONE	Included
☐WE&T,	
☐Water Environment Research or	
☐Operations Forum	
Highlights	Included

Additional Publications (See box below)

Periodical Code	Cost
______	$ ______
______	______
______	______
______	______
______	______
TOTAL	$ ______

☐ Corporate

Corporations engaged in the design, construction, operation or management of water quality systems. **One person is entitled to receive Membership benefits.**

Dues	$180.00
Dual*	$ 5.00
WE&T	Included
Water Environment Research	Included
Operations Forum	Included
Highlights	Included
Water Environment Regulation Watch	Included

Additional Publications (See box below)

Periodical Code	Cost
______	$ ______
______	______
______	______
TOTAL	$ ______

6

Dual Membership

*If you would like to join more than one Member Association, please incidate which association(s) you would like to join and write the Association's Dual dues (See back of form–last column) in the appropriate box above. WEF will track no more than three additional associations.

Indicate Additional Association(s) Here (No more than three)

Additional Publications

One or more of the following WEF periodicals may be ADDED to your membership package if they are not already included. Please enter the Periodical Code and Cost in the allocated space above.

	Periodical Code	Cost
Water Environment & Technology	WET	$40.00
Water Environment Research	RJ	40.00
Operations Forum	OF	25.00
Water Environment Laboratory Solutions	WELS	35.00
Water Environment Regulation Watch	WRW	35.00

**A photocopy of current student ID is required with Application.

7

Method of Payment

☐ Check Enclosed:
Make Check Payable to WEF
☐Charge my: ☐ VISA ☐ MC ☐ AMEX

Account Number Expiration Date

Signature Daytime Phone No.

Postage Requirement: Dues allocated for publications when included in membership: WE&T – $40; Water Environment Research -$40; Federation Highlights –$15; Operations Forum – $25; Water Environment Regulation Watch–$35 Water Environment Laboratory Solutions –$35

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AWWA USE ONL

AMERICAN WATER WORKS ASSOCIATION
INDIVIDUAL MEMBERSHIP APPLICATION

Complete this form and mail to:
AWWA / 6666 W. Quincy Avenue / Denver, CO 80235
(303) 794-7711 • FAX (303) 794-7310

PLEASE PRINT OR TYPE

Last Name ____________________ First Name (and middle initial) ____________________

Mailing Address ____

____

City ____________________ State/Province ________ ZIP/Postal Code ____________

Area Code ______ - Telephone ____________ Area Code ______ - FAX ____________

Title ____

Employer's Name (if not already in mailing address) ____

Applicant's Signature ____________________________ Date ____________

Signature of AWWA Member Endorsing Application (Optional) ____________________________ Endorsing Member Number ____________

ANNUAL DUES:

$80/Active
Grade Code 02

$35/Operations (formerly Affiliate)
Grade Code 06
(For operator level personnel or employees of small utilities. Will not receive Journal AWWA.)

$25/Student
Grade Code 14

ANNUAL DUES	$ ____________
New England Assessment*	____________
Multi-Section Option (other than own)	____________
TOTAL DUE	$ ____________

*Applicants with an address in the New England Water Works Association Section of AWWA (ME, NH, RI, VT, MA) must include $32.00 for Active Membership, or $15.00 for Operations Membership with their annual dues.

Make check payable to AWWA (Canadian funds add 15%).

☐ MasterCard ☐ VISA ☐ Diner's Club
☐ American Express ☐ Send Invoice

Card Number ____________________

Expiration Date ____________

PREPAYMENT OF ONE YEAR'S DUES REQUIRED
No action can be taken on this application until payment is received.

If you have been a member of AWWA before, indicate dates here:
____

☐ Please send an AWWA membership certificate.

Address shown above is: (check one) ☐ Home ☐ Office

MULTI-SECTION MEMBERSHIP

You may also select a year's membership in other AWWA sections by circling your choices and including $14 for each section circled. Enter this total on the line reading "multi-section option".

CIRCLE SECTION CHOICES

AKA	ALASKA	IWA	IOWA	PAC	PACIFIC NORTHWEST
ALA	ALABAMA-MISSISSIPPI	KAN	KANSAS		(OR, WA & PART OF IC
ARI	ARIZONA	KNT	KENTUCKY-TENNESSEE	PEN	PENNSYLVANIA
ATC	ATLANTIC-CANADA	MEX	MEXICO	PRT	PUERTO RICO
	(NB, NF, NS, PEI)	MIC	MICHIGAN	QUE	QUEBEC
BRC	BRITISH COLUMBIA	MIN	MINNESOTA	RMT	ROCKY MOUNTAIN
	(BC, YT)	MOU	MISSOURI		(CO, NM, WY)
CAL	CALIFORNIA-NEVADA	MTN	MONTANA	SCR	SOUTH CAROLINA
CHS	CHESAPEAKE	NDK	NORTH DAKOTA	SDK	SOUTH DAKOTA
	(DE, DC, MD)	NEB	NEBRASKA	SOW	SOUTHWEST
CON	CONNECTICUT	*NEW	NEW ENGLAND		(AR, LA, OK)
FLA	FLORIDA		(ME, NH, RI, VT, MA)	TEX	TEXAS
GEO	GEORGIA	NEJ	NEW JERSEY	VIR	VIRGINIA
HWI	HAWAII (GUAM)	NEY	NEW YORK	WEC	WESTERN CANADA
ILL	ILLINOIS	NOC	NORTH CAROLINA		(AB, MB, NT, SK)
IND	INDIANA	OHO	OHIO	WEV	WEST VIRGINIA
INT	INTERMOUNTAIN	ONT	ONTARIO	WIS	WISCONSIN
	(UT & PART OF ID)				

*IF "NEW" ENGLAND IS A CHOICE, add $46.00.
This includes their assessment and multi-section fee.

ALL APPLICANTS SHOULD COMPLETE THIS SECTION:

Circle the descriptions below that best describe you. The information is used in audits of AWWA readership.
Circle only ONE in each group.

BUSINESS AND INDUSTRY
- A. Public Water Supply Utility—Municipally Owned
- B. Public Water Supply Utility—Investor Owned
- C. Governmental—Federal, State, Local
- D. Consultant
- E. Contractor
- F. Private Industrial Systems or Water Wholesaler
- G. Manufacturer of Equipment & Supplies including Representatives
- H. Distributors of Equipment & Supplies including Representatives
- I. Educational Institutions, Faculty and Students, Libraries, and Other Related Organizations
- J. Fully Retired
- K. Research Labs
- L. Unreported

JOB TITLE
- A. Executive-Gen'l Mgr., Commissioner, Board Member, City Mgr., Mayor, President, Vice-President, Owner, Partner, Director, etc.
- B. Management-Division Head, Section Head, Mgr., Chief Engineer, Comptroller, etc.
- C. Engineering/non-managerial-Civil Engr., Mech. Engr., Envir. Engr., Planning Mgr., Field Engr., Systems Designer, etc.
- D. Scientific/non-managerial-Chemist, Biologist, Biophysicist, Researcher, Analyst, etc.
- E. Purchasing-Purchasing Agent, Procurement Specialist, Buyer, etc.
- F. Operations-Foreman, Operator, Maintenance, Crewman, Service Rep., etc.
- G. Marketing & Sales/non-managerial-Mkt. Analyst, Mkt. Rep., Salesman, Sales Rep., etc.
- H. Other (describe) ____________________

CHECK FIELD(S) SERVED:
- 5 ☐ Water Supply Only
- 7 ☐ Wastewater Only
- 9 ☐ Both
- 3 ☐ Other

In some AWWA sections, a portion of the section allotment equal to 50 percent or more of the domestic subscription rate charged for the section periodical will be allocated toward a subscription of that periodical.

Dues allocated for each publication members receive:
Journal $28
MainStream $6
Opflow $5

1/93

1995 ANNUAL CONFERENCE
MWEA & MSAWWA
"GROWING PAINS - GROWING GAINS"

MAY 4th and 5th, 1995
HERITAGE INN - GREAT FALLS, MONTANA

The Annual Joint Conference of the Montana Water Environment Association and the Montana Section of the American Water Works Association is being held at the Heritage Inn in Great Falls on May 4th and 5th, 1995. **The program will feature closing remarks on Friday by Bill Yellowtail, the Regional Administrator for Region 8 of the Environmental Protection Agency.** He directs the operations for the EPA for Montana, Colorado, North and South Dakota, Utah and Wyoming concerning federal environmental programs dealing with air, water and land. Mr. Yellowtail served as a Montana state senator, and along with other positions with the state and tribal organizations, ranches in Montana as well. We are extremely pleased that Mr. Yellowtail has decided to address our conference and encourage all members and readers of this journal to attend.

The conference also features a wide variety of speakers and topics about water , wastewater and other pertinent topics. **Please note the Pre-Conference session. Dr. George Tchobanoglous, Univ. of California at Davis, who is a nationally renowned speaker widely recognized for his expertise in wastewater treatment, will present a technical seminar on "Wastewater Treatment for the Future." We are fortunate to have Dr. Tchobanoglous here in Montana and we encourage all consultants, regulatory officials, local government planners, superintendents and engineers, and water and wastewater operators to attend this very special event.**

The conference will also include many vendor exhibits demonstrating the latest developments, an awards banquet, entertainment and much, much more. Plan to attend.

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Tentative Technical Program
May 4, 1995
Joint Morning Sessions (American, British, Canadian Rooms)

8:30 a.m. *Call to Order - Chip Johnson, MSAWWA and Bill Bahr, MWEA*

Invocation

Welcome to Great Falls - Mayor Gayle Morris

Keynote Addresses: AWWA and WEF National Officers

Montana Legislature Update

10:00 a.m. *Vendor Exhibition - Heritage Inn Poolside*

11:30 a.m. *Luncheon*
Speakers: WEF and AWWA National Officers
1:00 p.m.

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1995 ANNUAL CONFERENCE
MWEA & MSAWWA
"GROWING PAINS - GROWING GAINS"
MAY 4th and 5th, 1995
HERITAGE INN - GREAT FALLS, MONTANA

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Tentative Technical Program
May 4, 1995
Concurrent Afternoon Sessions

WATER TREATMENT (American Room)

1:00 p.m.	*"Federal Regulations: Federal Safe Drinking Water Act Reauthorization Status", Chris Cullen, Morrison-Maierle*
1:30 p.m.	*"Evaluation of Filter Performance to Remove Giardia and Cryptosporidium", City of Billings. Gary Fuller, HDR Eng.*

WASTEWATER TREATMENT (British Room)

1:00 p.m.	*"Energy Efficiency Improvements at Water and Wastewater Plants." John Campbell and Rick DeMarinis, ERM; and MPC*

MUNICIPAL MANAGEMENT (Canadian Room)

1:00 p.m.	*"Environmental Mandates - A Local Government Perspective." Erling Tufte, City of Great Falls*
1:30 p.m.	*"Value Engineering Improves the MNI Wiconi Rural Water Project." Patrick Murtagh, HKM Associates*

***********************2:00 p.m. BREAK*********************

WATER TREATMENT (American Room)

2:15 p.m.	*"Circle Turns to Reverse Osmosis - Process Selection, Funding and Pilot Study." Douglas Whitney, HKM Associates*
2:45 p.m.	*"Missoula Radon Studies", Bob Ward, Mountain Water Co.*

WASTEWATER TREATMENT (British Room)

2:15 p.m.	*"Autothermal Aerobic Digestion (ATAD) - An Emerging Digestion Technology." Pat Burke, WQD*
2:45 p.m.	*"Land Application of Wastewater Effluent at Deer Lodge", Tom Hanson, Professional Consultants, Inc.*

MUNICIPAL MANAGEMENT (Canadian Room)

2:15 p.m.	*"Contract Facility Operation - Yes or No?" Mike Jacobson, City of Great Falls*
2:45 p.m.	*"Butte and the EPA Moratorium on their Drinking Water Treatment and Distribution System", Mike Patterson, City of Butte*

**********************3:15 p.m. BREAK*******************

1995 ANNUAL CONFERENCE
MWEA & MSAWWA
"GROWING PAINS - GROWING GAINS"
MAY 4th and 5th, 1995
HERITAGE INN - GREAT FALLS, MONTANA

* * *

Tentative Technical Program
May 4, 1995
Afternoon Sessions

GROUNDWATER AND WATERSHED ISSUES (American Room)

3:30 p.m. *"The Montana Groundwater Assessment and Monitoring Program",*
John Arrigo, WQD

4:00 p.m. *"Virus Transport Study in Missoula",*
Dan DeBorde, University of Montana

INDUSTRIAL, MINE AND HAZARDOUS WASTE TREATMENT (British Room)

3:30 p.m. *"Minimizing Sludge Production in Oily Wastewater Treatment."*
Donald Sherman, Remediation Technologies Inc.

4:00 p.m. *"Field Evaluation of Low-Rank Coal in Treating Acid Mine*
Drainage." Dr. Kumar Ganeson, Montana

HUMAN RESOURCES (Canadian Room)

3:30 p.m. *"Stress Management." Heidi Goldman*

********************4:30 p.m. ADJOURN********************

4:30 p.m. VENDOR'S HOSTED BAR POOLSIDE

6:00 p.m. BANQUET AND ENTERTAINMENT

* * *

1995 ANNUAL CONFERENCE
MWEA & MSAWWA
"GROWING PAINS - GROWING GAINS"
MAY 4th and 5th, 1995
HERITAGE INN - GREAT FALLS, MONTANA

* * *

Tentative Technical Program
May 5, 1995
Morning Sessions

PUBLIC EDUCATION

8:30 a.m.	*"Yellow Fish Road: A Storm Drain Marking Program",* *Virginia Stevens and Erling Tufte, City of Great Falls*
9:00 a.m.	*"Water Education for Teachers - New Program Developments",* *Gina Morrison, MSU*
9:30 a.m.	*"Watershed Education Programs",* *Mary Ellen Wolfe, Montana Watercourse*

COLLECTION AND DISTRIBUTION SYSTEMS

8:30 a.m.	*"Trenchless Sewer Rehabilitation in Great Falls."* *Greg Howells, GELCO*
9:00 a.m.	*"Selecting the Correct Method for Open Channel Flow Measurement", John Hansen and Brian Dawson, ISCO, Inc.*
9:30 a.m.	*"Collection System Operator Certification Program: Proposed Options", Bill Bahr, WQD*

********************10:00 a.m. BREAK********************

10:30 a.m.	***ADDRESS BY BILL YELLOWTAIL*** ***REGION 8 EPA ADMINISTRATOR***
11:30 a.m.	***LUNCHEON (Heritage Inn Poolside)***
1:00 p.m.	***ANNUAL BUSINESS MEETING*** ***MSAWWA AND MWEA***
3:00 p.m.	***ADJOURN***

* * *

WATERSHEDS: SOMETHING NEW?

by Bill Bahr

Watersheds are considered a key element of the EPA's approach to water quality management. So, what is a watershed? We are all in one watershed or another. Anyone living anywhere lives in a watershed. Every drop of rain, every cubic foot of water that flows, all the ground water, all the surface water, all water is somewhere in a watershed. The oceans, the rivers, the stream outside your back door, flows in a watershed. Watersheds are defined by the landscape in which waters are. Continental divides, rocky ridges, hilltops and plateaus are part of the surface definition of the earth. Water flows from higher point to lower points, only to be redistributed to the atmosphere in the water cycle. Thus watersheds share their waters with other watersheds, and the cycle continues around and around the planet.

Why is watershed management so important, then? Humans and animals and plants and other living creatures dependent upon water for life are affected by the water quality in the rivers and streams and oceans in watersheds. Each of us impacts our watersheds by the uses we put our water to. Note, I wrote our water. We think of water as ours. The water we drink from the local treatment plant must taste good and be safe or we get very upset. The rivers we swim and fish in must be good enough for those purposes, or we might be tempted to write letters to our legislators demanding that the problem be solved. That is where the EPA and, now, watershed management come from. We want high quality waters to support our lifestyles. For that to happen, we must manage our watersheds with care.

In the past, waters were monitored and protected state-by-state and point source of pollution by point source of pollution. That was a good idea, but not very practical. It was, in a sense, a political solution (oxymoron). We know how variable politics can be; who wants their water quality to be as variable as the political scene? In Montana, we have been lucky to be the origination point for much of the water that people in downstream states had to use. If we used it all up or messed it all up, those downstream folks would be mighty peeved at us. So, by adopting a watershed, mountaintop to ocean, management scheme, we all can begin to sense the responsibility we have for the water we use. It's no longer that city water plant or wastewater plant, or that river or that lake, but my plant and my river and lake.

A watershed is a drainage basin. All the runoff, water from groundwater systems, streams and creeks ends up in the same water body. The U.S. can be defined as watersheds separated by the continental divide; one side flows to the Mississippi, the Gulf of Mexico and the Atlantic, the other to the Pacific. Those are watersheds on a macro scale. In Montana we have the Milk River watershed and the Clark Fork River watershed to name some smaller portions of the larger systems. There are watersheds within watersheds. We all live in and use our watershed. Since we drink it and use it, we should know about the water in our watershed.

Every activity we participate in can potentially impact the water in our watershed. Sources of pollution, point and nonpoint, affects water quality in a watershed. Because there are different impacts in watersheds, watershed management allows for more flexible approaches. This is not a one-size-fits-all program. Each watershed can work to address the issues specific to that watershed. All of the stakeholders in each watershed can be involved. The solutions will be defined by those creating and being impacted by the problems. They will understand and likely help implement the solutions.

Watershed management goes beyond pollution control. It means you can address other types of issues, like fishery populations and dams, or irrigation uses and in-stream flows during these drought years. There will be watershed planning and training sessions in your area. You live in a watershed. Your water is important to you. Attend watershed planning sessions and make sure that your water is the quality you want.

Has the Clean Water Act Done the Job?

After two decades of the Clean Water Act, are our rivers cleaner? Are our beaches safe for swimming? Do our lakes and rivers support more fish, and are those fish safe to eat? What is happening to species that rely on aquatic habitat? Collected data from numerous studies yields far from decisive conclusions. The answer from Robert Adler of the National Resources Defense Council, is that it is "almost impossible to determine whether, on a national basis, we have made significant progress in the war against water pollution."

We measure water quality in the real world of swimming, fishing, and drinking; aquatic ecosystem health and availability of important aquatic habitat; and status of fish and other species that rely on our rivers, lakes and wetlands. There have been successes in removing pollutants from traditional sources such as wastewater plants and factories. But, because of massive amounts of polluted runoff from streets and agricultural lands, as well as destruction of valuable wetlands, floodplains, stream channels, coastlines and other aquatic habitat, efforts to restore the health of our aquatic ecosystems are actually being forced backwards. (Adler)

In spite of the billions of dollars invested in municipal wastewater treatment and to treat an ever increasing amount of waste annually, and despite a decrease of 46 percent annually of releases of organic waste, public sewer systems serving over 26 million people provide less than secondary treatment, and about 1.5 million people had no treatment at all. It hardly seems we've accomplished the task when raw sewage is discharging into public waters and over 70 million people are not even served by public sewers.

Industrial pollution control efforts have been correspondingly effective in reducing toxic organic pollutants, toxic metals, and organic wastes and solids. The whole story is not completely rosy, however. Adler reports that in 1990, 200 million pounds of toxics were released into surface waters and another 450 million pounds ended up in public sewers.

Adler reports further that the biennial *National Water Quality Inventory* covering 1990 and

1991, demonstrates that the goals of the 1972 Clean Water Act have not been met: Roughly 40 percent of our assessed rivers and lakes and roughly a third of our assessed estuaries are not meeting or fully supporting designated uses. Clearly we have not met the 1983 "fishable and swimmable" goal of the law. And despite incomplete monitoring, states report that toxic pollutants affect a large percentage of waters. Thus, we have not eliminated the release of "toxic pollutants in toxic amounts" either.

More disturbing news about the effect of water problems on human health:

> Is it safe to go to the beach? A large number of water bodies (one out of ten ocean miles and one of five lake acres) are not safe for swimming. There were over 2,600 reported beach closures in 1992, and over 7,700 reported closures between 1988 and 1992.
>
> There continue to be problems throughout the nation concerning pollution of drinking waters. The numbers of small systems facing seemingly insurmountable problems with meeting drinking water guidelines is large. (See article by Scott Anderson addressing these issues in this Clearwater.)
>
> Other sobering reports show fish and shellfish contamination. Some toxic chemicals, including mercury and PCBs, were found in 90 percent of test sites. Sediment contamination problems were noted in hundreds of locations.
>
> Aquatic species and ecosystems are in jeopardy, as well. Human activities continue to degrade habitats for aquatic species and other species that rely heavily on aquatic ecosystems. There have been significant declines in many seafood populations. Reported fish kills are increasing and there continue to be reports of aquatic toxicity in the Great Lakes region.
>
> All of the above issues are exacerbated by the continued loss and damage to aquatic habitats, wetlands, and floodplains and riparian habitat.

In final analysis, while there is good reason to celebrate the successes of the Clean Water Act, much remains to be done to assure protection of our waters. The three main messages that Adler leaves us with are: First, although point-source pollution has declined, we continue to release large amounts of toxic and other pollutants into our water, causing continuing contamination of water, sediment, and fish and wildlife. Second, although we have paid much attention to pollution sources, relatively little has been done to stem the tide of polluted runoff from farms, lawns, and city streets. Third, while some progress has been made in restoring the chemical integrity of our waters, the biological health of these same waters is moving in the wrong direction.

Robert Adler is Senior Attorney at the National Resources Defense Council in Washington, D.C.

ARE CONSTRUCTED WETLANDS A VIABLE TREATMENT ALTERNATIVE?

by Frank C. Little, WQD

With the reductions in available federal dollars and the ever increasing regulatory requirements, many communities, as well as industry and agriculture, are looking for simple, yet economic solutions to their wastewater treatment needs.

Constructed wetlands treatment has been gaining momentum and is being mentioned more and more often as the answer. In offering treatment that is both environmentally sound and aesthetically pleasing, many ask why the technology has been so slow to develop.

The answer to this question is related to, one, the conservative approach that most regulatory agencies take toward new technologies, and, two, that many people are skeptical that treatment will occur in cold climate applications similar to Montana.

Constructed wetlands have often been listed as a preliminary treatment alternative, but continually fail to get past the planning stage in most feasibility studies. The reasons most often cited, for abandoning this alternative, are lack of a proven technology and insufficient system reliability, especially in cold climates.

This skepticism, combined with the large capital investment of most treatment systems, makes regulators, designers, and financial institutions a bit hesitant.

In defense of constructed wetlands, they have proven effective in warm climate applications through out the United States. Their uses include systems for treating municipal sewage, urban stormwater run-off, various industrial wastes, and acid mine drainage.

Just recently, constructed wetlands treatment has been chosen as the preferred alternative on two separate projects within Montana.

In September, the City of Ronan's Wastewater Facility Plan, using a constructed wetlands for tertiary treatment, was approved. Although only at the design stage now, the project appears to be a good fit for a cold climate constructed wetlands. The submerged bed wetland will be used to provide tertiary treatment to the existing aerated lagoons. Besides convincing the regulators of the viability of the project, the City of Ronan, has been very successful in obtaining grant funds for the alternative type system. The goal of Ronan's project is to provide additional treatment that will allow the City to accommodate the increased population growth of the area while complying with the State's Nondegradation Law.

Last December, the States first on-site sewage treatment system using constructed wetlands technology was approved in Yellowstone County. The wetlands system will follow a conventional septic tank and precede a shallow capped drain field in an area where marginal depth to groundwater exists. The wetlands vegetation will uptake the phosphorus and nitrogen rich septic tank effluent before it enters the drainfield and underlying aquifer.

Another wetlands development of interest involves a benchscale constructed wetlands for treating swine wastes at the Agriculture Experiment Station at Montana State University. The emphasis of this study is to evaluate treatment effectiveness under varying parameters of waste strength, flow rates, and temperatures.

As more and more constructed wetlands are evaluated for various treatment alternatives, it is important to remember that not just every site or waste stream is conducive to this type of treatment. It is just another of the many options, that designers may opt for, when treating wastewater.

Home Water Treatment Devices

Getting The Right System!

By Rick Cottingham, Field Services Section

Since our last issue the Water Quality Division has received numerous calls from systems requesting information about home water treatment units. If your water system is getting calls for information on these devices, the following information may be useful.

There are a wide variety of units available. They range from simple and inexpensive filters that mount on the tap (known as point of use devices), to more sophisticated units that treat the water as it enters the residence (referred to as entry devices). No one unit.filter or treatment, can solve all water problems. So the first thing to know when selecting yours is what contaminants your going to remove. Then you can identify the correct unit for your use. This is where the grey area comes in. Be advised that there are many types and manufacturer's that all claim to be the best.

There are two reliable sources of information to aid consumers on water treatment units:the National sanitation Foundation(NSF) and the Water Quality Association(WQA). They are both independent, not for profit organizations that can provide you with information to help you select a unit. The NSF certifies units insuring that they remove the contaminants they claim to.

The four most common types of home water treatment units are:

1. Activated carbon - are the most common and popular units. They work in a manner similar to a sponge. They come in a variety of units (faucet mounted,under the sink units, and carafe units) As water passes through the filter, the molecular structure of the activated carbon causes the organic molecules to adhere, or absorb, to its surface. Carbon filters will remove pesticides along with undesirable taste and odors. These are not recommended where there are lead or microbiological concerns. For cyst reduction, such as Cryptosporidium, be sure the unit is certified by NSF. Which ever carbon filter you chose be advised that maintenance is critical. They must be replaced according to manufacturer recommendations or they may become a breeding ground for bacteria. Filters that are silver impregnated must be certified by the USEPA. This doesn't mean they certify the water treatment acceptability only that the silver will cause no adverse side effects.

2. Reverse Osmosis (RO) devices - come as point of entry devices;to treat water from the entire household,and point of use devices small enough to fit under the sink.The RO units work like a sieve.the water is pressed up against a semipermeable membrane.This membrane allows molecules of water to pass, but stops ions (charged particles) and larger molecules. Generally a carbon filter is installed to prefilter the water, removing organic contaminants. Some of the drawbacks to this type unit is the amount

of water used by the unit and the ease which the membrane can become torn. Recovery rate is the term given to the amount of water the unit needs to provide a single gallon. This varies from system to system. The better units are three to one which means three gallons are used to produce one gallon of treated water. The higher the ratio the higher your water bill.

3. Distillers - these treat water by boiling it then vaporizing it until it condenses.The distillate drips into a container while that which won't boil is left behind in the boiling pot.This usually includes salts, metals and sediment.These are useful in treating for salts and metals, such as lead. Boiling water long enough can kill organisms such as microorganisms. Distillers are not effective in removing Volatile Organic Chemicals (VOC's), they vaporize into the distiller and can end up in the condensed water. One of the main drawbacks is the amount of time that it takes to distill the water(approximately 5 hours/ gallon) and the amount of maintenance the unit requires.

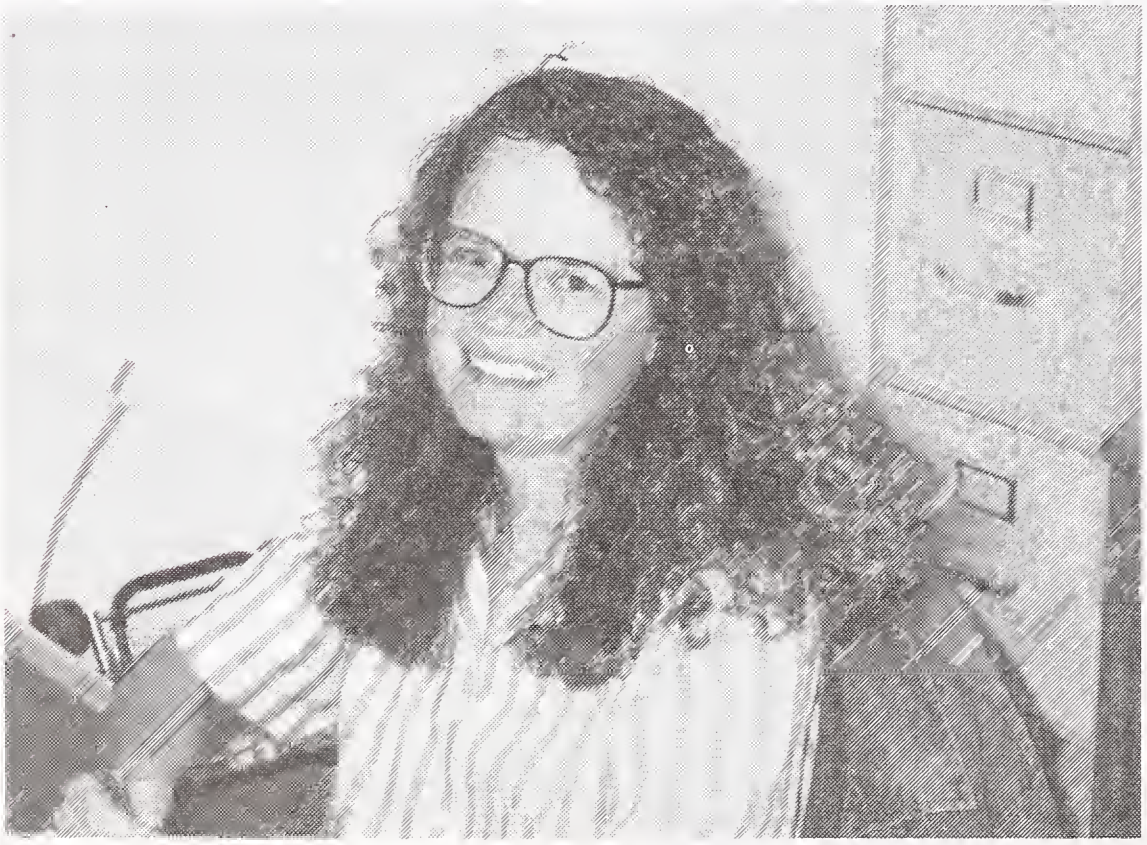
4. Water softeners - have been around from more than 60 years. Original units were used to reduce hard minerals that caused soap buildup. As the water passes through the unit it contacts the synthetic resin beads and the mineral ions take the place of the sodium ions on the bead surfaces. In respect to drinking water these units have a limited use. Though they are effective at removing lead, they do not remove nitrates, pesticides, or microbes. They tend to be large, cumbersome, and higher priced than other types of home treatment units. The main advantage is they require very little maintenance.

Now that we have sorted out the differences between the various types of units available, we should maybe discuss the need for such a unit. If the inquirer has concerns with the water supplied by your water system, inform them of the steps that you take to insure that they are supplied with safe potable drinking water. You can explain the results of your lead and copper, Phase II and V, nitrate and nitrite, or monthly microbiological sampling results. You can explain any corrosion control, source water protection, or tell them of your wellhead protection programs.

NEW EMPLOYEE
IN THE DRINKING WATER/SUBDIVISION SECTION

The Drinking Water/Subdivision Section of the Water Quality Division has a new engineer in the Field Services Program. **Carol Stuckey** started in April 1994. Carol was hired to provide engineering support to the program, particularly in the area of surface water treatment and training. She has an excellent background in design and construction management for potable water treatment and distribution, having worked for the past nine years with Montgomery-Watson and for three years before that with Bechtel National, Inc. Carol is currently involved in working with systems that need to install filtration treatment of their surface water sources. Carol also has developed policy to assess groundwater sources that may be under the direct influence of surface water.

Carol is a graduate of the University of Missouri, where she received a Bachelor of Science in Civil Engineering. Carol is a registered Engineer in Washington and California and is pursuing registration in Montana.



Groundwater Under the Direct Influence of Surface Water

A portion of the Surface Water Treatment Rule (SWTR) requires that public water supply groundwater sources be examined to determine if they are directly influenced by surface water. As the Primacy agency for the SWTR the State Water Quality Division (WQD) must insure that all groundwater sources in the state go through this determination process. Community water systems will be examined first, followed by non-transient and transient systems.

The first step of the process will be completed by the WQD. This step is a Preliminary Assessment (PA) which will primarily be conducted via a file review for each source. The PA will consider the type of source (i.e., a spring, infiltration gallery, or well), the source's history in terms of microbiological or pathogenic contamination, the hydrogeologic features of the source, and the construction of the source. Points will be assigned to these various parameters and those sources which score less than 40 points will be declared "groundwater" and will be through with this process. Sources that score 40 or more points will need to be examined further. All infiltration galleries and springs will score at least 40 points.

The WQD will notify all systems with sources that require further examination. From this point on the public water supply system personnel will be very involved with the process. Further examination will consist of any or all of the following: a focused sanitary survey, a Hydrogeologic Assessment, a Water Quality Assessment, Microscopic Particulate Analyses. The WQD will work with the systems to determine which of these to begin with based on the circumstances particular to the specific source. The eventual outcome of all this for some sources will be the determination that they are "groundwater under the direct influence of surface water". Such sources will have to comply with the SWTR which means, among other things, full-time disinfection for all and filtration for most.

As mentioned above Community Water Systems will be the first to go through this process. The WQD will conduct PAs on a regional basis in order to best approach the over 1,000 public water supply groundwater sources in the state. The entire process of examining all sources will take a few years. Some public water supply systems that are at transitional points with their system, for example adding a source, modifying an existing source, or expanding their system, are contacting the WQD and beginning the process on their own in order to best plan for the future.

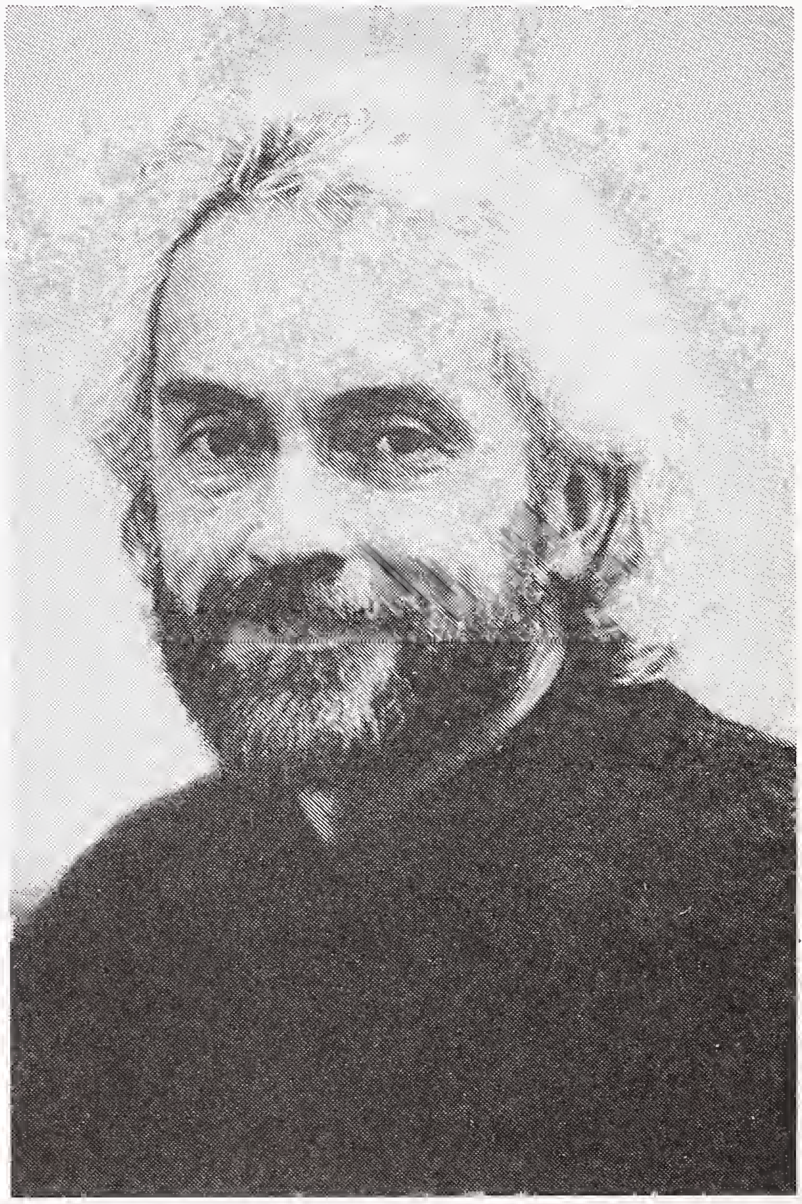
JERRY BURNS
1994 Co-winner Employee of the Year

Jerry Burns is currently the office manager of the Billings Regional Office of DHES at MSU-Billings (Eastern). Jerry was born and raised in Billings. His parents still live in Billings and he has one brother in Palm Springs, CA. Jerry and his wife Sue married in 1975. They have two beautiful daughters; Heather, 14, and Ashley, 12. When Jerry isn't at work, he enjoys playing basketball, is a skilled fly fisherman and is adept in photography. He enjoys taking photos of his family and has been the photographer at weddings of friends and acquaintances.

Jerry graduated from West High School in 1967. He attended MSU and received a bachelors degree in civil engineering in 1973 and a masters degree in civil engineering in 1975. He began a doctorate program in civil engineering, but a serious illness forced him to leave the program before he could finish. Jerry's illness was fortunately diagnosed later and corrected through surgery.

In 1976 and 1977, Jerry worked under an EPA contract to develop a water quality management plan for the Gallatin and Madison River drainages. In 1978 and 1979, Jerry worked for Bressler and Associates, an engineering consulting firm in Bozeman. Jerry began work for the Water Quality Bureau in the Billings office as a sanitary engineer in October of 1979. He accepted the position as the manager of the Billings office in 1983. He handles a wide variety of duties in several programs, including plan review, inspections, complaint investigations and technical assistance in addition to his management duties.

The Water Quality Division staff regard Jerry as a highly competent engineer. The Helena office refers complex hydraulic reviews to Jerry. Jerry has also always been a very responsive, professional public employee. He was awarded the Distinguished Service in Environmental Health Award last year by the Montana Environmental Health Association. The Water Quality Division congratulates Jerry on his receipt of the John W. Bartlett Employee of the Year Award!



INGMAN RECEIVES BARTLETT AWARD

Gary Ingman of the Water Quality Division was one of two Division employees to receive the Department of Health and Environmental Sciences' John W. Bartlett Award for 1994. The purpose of the award is to recognize and reward DHES employees for excellence in the performance of his or her job in the area of public health or the environment. John Bartlett was a respected deputy director of DHES who passed away in 1985.

Ingman's leadership, hard work, energy, and persistence have generated significant gains in water quality in Montana. Recently, following Gary's lead, the Town of Deer Lodge adopted a phosphate detergent ban and completed plans for land application of its treated wastewater. Gary's monitoring of the Clark Fork River has documented significant improvements in the the river's health as a result of improved wastewater treatment, cleanup of mine tailings, and adoption of local bans on the sale of phosphorus-containing laundry detergents.

Ingman is a Helena native who has dedicated almost 18 years of his life to improving water quality in Montana. He started at DHES in 1974 as a technician in the Chemistry Laboratory. He was rehired as a water quality specialist in 1977 and has worked his way up through several positions to serve as watershed planning coordinator for the Water Quality Division.

Gary's knowledge, integrity and dedication have earned for him the respect of both the regulated and environmental communities and he has been an inspiration to many of his coworkers. In accepting the award, Ingman said "It's not hard to put your heart into your work when you believe in your mission and when you're lucky to have a job that corresponds to your own personal interests and ethics."

Gary Ingman receives award from Director Bob Robinson

DIVISION ADMINISTRATOR

STEVE PILCHER

Steve Pilcher, who had been acting administrator of the MDHES Water Quality Division since this past July, was appointed permanent Water Quality Division Administrator effective November 15 by Department Director Bob Robinson.

Pilcher has been with the department since 1972 and became chief of what was then the Water Quality Bureau in 1979. In 1990, he was named administrator of the former Environmental Sciences Division, which then included the Water Quality, Air Quality, and Solid and Hazardous Waste Bureaus. In July 1994, when the Environmental Sciences Division was abolished and those bureaus became divisions, Pilcher was named acting administrator for the new Water Quality Division.

Pilcher said he welcomes the opportunity to return and work with one of the finest groups of professionals anywhere in state government. He said he looks forward to the challenges that the division faces including implementation of the nondegradation rules and the possibility of reorganization of natural resource agencies. That suggestion, part of a package of proposals put forward by the Renew Government Task Force, would create a new Department of Environmental Control.

Pilcher said this job is never boring. "There is always something interesting happening around here," he said. "No two days are the same."

DON WILLEMS SCHOLARSHIP

Denver Frasier takes a tour of the Butte-Silver Bow wastewater treatment plant with Fred Wendt after receiving the Don Willems Scholarship for 1994. Denver is a 1984 graduate of Capital High School in Boise, Idaho. After a short duration in Idaho, Denver came to Montana and worked on a family ranch and even bought and operated his own ranch from 1987 until 1991.

After spending three semesters at boise State and two years at Montana State University, he came to Montana Tech and enrolled in an Environmental Engineering Curriculum. As a junior, he has a 3.3 GPA and is planning to graduate in the Spring of 1996. Because he enjoys the area and calls Montana "home", Denver is hoping to work in the water and/or wastewater fields in Montana. Having a strong work ethic and a 3.3 GPA, Denver would be an asset to any business.

Denver is a very congenial person both on a personal level and professional level. We all hope Denver not only finds work in Montana but also a bright future in the environmental field.

GOOD LUCK !

WEF BOARD MEMBERS

MESSAGE FROM THE PRESIDENT

by

MWEA President, Bill Bahr

To all Montana's operators, consultants, city officials, members of MWEA and MSAWWA, manufacturer representatives and others who read this, I wish you a productive and safe NEW YEAR. I also hope you will all attend the Annual Joint conference of the Montana Water Environment Association and the Montana Section of the American Water Works Association on May 3-5, 1995, in Great Falls. We have put together a very educational pre-conference program featuring a fresh look at non-traditional natural wastewater treatment systems to help small communities meet Montana's non-degradation requirements.

The conference program features a variety of presentations submitted in response to a call for papers. The range of topics is wide and includes water treatment, management, mine waste treatment, and wastewater treatment, to name a few. Speakers will include students, public works directors, and consultants along with the WEF and AWWA national officers. **A featured speaker will be Bill P. Yellowtail, regional administrator for Region 8 of the EPA, who has offered to address the closing of the conference on Friday, May 5.** As usual, a large number of manufacturer representatives will be on hand and a banquet and entertainment is scheduled for Thursday evening. The conference is a good value and is a great opportunity to meet other folks who share your interests in treating and protecting Montana's water.

I was fortunate to be selected to serve as president for MWEA last April at our conference in Helena. I have always enjoyed working with the dedicated folks who make up the MWEA membership. This year has seen some big changes in the water quality arena. Montanans now have a non-degradation water quality policy that will help to preserve our high-quality waters. MWEA worked to get this Act adopted and to formulate the rules by which it will be enforced. We conducted two Emergency Planning seminars this year. Thanks to the people in Bozeman and Great Falls who made this possible. The Education Committee, chaired by Karen Bucklin Sanchez, organized and conducted three Infrastructure Financing seminars. Talk about a lot of work!

I was able to attend a Member Association regional meeting in San Francisco this summer. One of the benefits of maintaining close ties with our neighboring associations is to find out how they run their organizations and if we can try some of the efforts that work for them. For example, the California group has a large membership, but half of their membership is made up of an association class of member. These members belong to the CWPCA, but not the WEF and the dues are much lower as a result. We have discussed trying this approach here to boost our membership roles. I would like to see all of my fellow operators out there in Montana get involved with MWEA. I have definitely gotten a lot as a result of my involvement with MWEA. Increased professionalism in my work, the opportunity to promote safety and operator training throughout the state, and some great friendships have all made belonging to MWEA extremely worthwhile. Give it a try, you'll like it.

Reflections in the Ripples

We now have a picture of the WEF Hatfield Award being presented to Lee Leivo of the Bigfork Water and Sewer District. Lee was meeting with the Operator Certification Council in Helena in November, so we thought we would finally get a chance to hand him the late-arriving award. Congratulations again, for all your fine work, Lee.

SAFETY

I know many of you are trying to implement the Montana Safety Culture Act into your workplaces and communities. METC has been offering safety training at workshops this past year and in the year to come that have portions devoted to the Safety Act's rules. Please contact the Department of Labor, Safety Bureau, 444-6401, for copies of the final rules and for help in getting this vital program put into effect where you work. The key issues are:

General safety orientation new employees

Job or task-specific safety training prior to worker doing job or task without direct supervision

Refresher safety training

Self-inspection for hazard assessment

Safety programs for employers with more than five employees also require:

Assignment of safety performance

Assignment of specific safety responsibilities

Procedures for reporting, investigating and taking corrective action

Do you care enough to make your workplace safer? Encourage fellow workers to do it the "safe way." Report unsafe work conditions or practices. Take the time to do it safely.

WATER AND WASTEWATER OPERATOR CERTIFICATION NEWS

by Shirley Quick, Certification Officer, WQB

Confusion about Water "School"

I always enjoy meeting and talking to all of the operators and operator "wannabes", and the 1994 Annual Water School in Bozeman this fall was a great opportunity for me to do so. However, I was discouraged to see how many new operators were there to take the exam with the mistaken belief that they would learn everything they needed to know at the water "school" before they took the exam.

Please note that this is not the case. **You will never learn everything you need to know at a water school to pass the exam OR to be a competent operator.** The water school was designed for professional operators who are already certified or working in the field. The study materials we provide and suggest are designed for self study.

However, at the March 1995 water school there will be sessions available each day to answer questions you may have from your self study, and to give you an overview of information. Since these are designed for entry-level operators, no CECs will be given for these sessions. Look inside this issue of the Clearwater for more information on the spring water school in Miles City.

Application Deadline 15 Days Before Exam

Another problem noted at this water school, was that there were several late applicants who signed up to take the exam after the 15 day deadline. Twelve of these applicants subsequently failed the exam they signed up to take.

The Administrative Rule of Montana (ARM) 16.18.204(1) states: "A person desiring to take the examination for certification as a water treatment plant, wastewater treatment plant or water distribution system operator **must complete the application form and return it to the department at least 15 days before the date of the next examination.**"

If the application forms are not received by this office 15 days before the examination date, the necessary study materials cannot be mailed in time to allow enough study time for the examination. Therefore, the Water and Wastewater Operator's Advisory Council has determined that **NO exam will be given unless the completed application has been returned to the certification office postmarked at least 15 days before the date of the examination. NO EXCEPTIONS WILL BE GRANTED.**

Please note this for any future exam applications. This will enable you or your employees to have enough time to study, as well as saving you the expense and frustration of repeat examinations. **The deadline for the March 18, 1995 examination is March 3, 1995.**

New Formula Sheets

The Advisory Council is compiling a new formula sheet to come with your study materials and to be included with your exam. We hope the new formula sheet will be easier to understand and to use. Applicants signed up to take the exam in the fall of 1995 will be furnished with both the old and the new formula sheet. Both old and new will be included with the exams also.

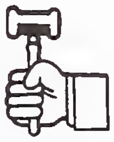
As always, we appreciate any comments you may have on the new sheets or any study material you receive.

No More Partial Credit for Math

To speed up the grading process, the Advisory Council has determined that partial credit will no longer be given for multiple choice math questions on the certification exams. That means, even if you show your work on the exam, **if you choose the wrong multiple choice answer you will not receive any points** for that question. This new policy for grading will begin with the fall 1995 exam.

New Advisory Council Officers Elected

At the November 17, 1994 meeting, **Steve Ruhd**, Assistant Water Superintendent for the City of Conrad, was unanimously re-elected as Chairman of the Water and Wastewater Operator's Advisory Council. **Mike Holzwarth**, Supervisor of Municipal Services of Colstrip Community Services was elected Vice Chairman.



The Council members are **Bob Cottom**, Assistant Director of Operations for City of Dillon; **Warren Jones**, Professor, MSU Civil/Ag Engineering Department; **Lee Leivo**, District Manager of the Bigfork Water/Sewer District; **Curt Myran**, Director of Public Utilities for Miles City; and **Steve Pilcher**, Water Quality Division Administrator.

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CEC Survey

In order to ease the transfer of Montana certification to other states, the WQD uses as its guideline for administering Continuing Education Credits (CECs) The Continuing Education Unit Criteria and Guidelines document which was published by the national Council on the Continuing Education Unit.

Their definition of a continuing education unit is: "One Continuing Education Unit is ten contact hours of participation in an organized continuing education experience under responsible sponsorship, capable direction, and qualified instruction." This means that for **each ten hours of training, 1.0 CECs is awarded**. One difference between how they determine CECs and the way we do, is that they disregard any fractions of an hour (i.e., .05 for a half hour would not be allowed). Another difference is that they do not allow CECs for conferences.

We have had a complaint that the CEC fractions are confusing for operators. Therefore, we would like to hear what all certified operators feel about fractions in CECs. Please send **IN WRITING** your answers to the following questions:

? Should the WQD CEC policy differ from the national policy of 1.0 CECs for 10 hours of training and **change to 1.0 CECs for 1 hour of training?** (For example: 1.5 CECs would be for an hour and a half of training)

REMEMBER, if we change to 1.0 for 1 hour it will cause problems for certified operators transfering to another state or for operators certified in another state.

Send your **written** answers by August 1, 1995 to Shirley Quick, WQD, PO Box 200901, Helena, MT 59620. We will tally your answers and discuss them at a Water and Wastewater Operator's Advisory Council in the fall of 1995.

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CERTIFICATION EXAMINATION NOTICE
SATURDAY, MARCH 18, 1995, 9:00 AM to 1:00PM

Examinations for certification as a Water and Wastewater Operator will be given at these seven locations:

BILLINGS	**Eastern Montana College; Student Union; second floor; Yellowstone Room**
GREAT FALLS	**Northern Montana College; 1211 NW Bypass; Room 101**
HAVRE	**Northern Montana College; Hagener Science Center; Room 103-104**
HELENA	**Cogswell Building; 1400 Broadway; Room C209 (use south side entrance)**
KALISPELL	**Kalispell Wastewater Treatment Plant; 2001 Airport Road; Conference Room (south end of city airport)**
MILES CITY	**Miles Community College; 2715 Dickinson; Room 106, 107, or 108 (main building)**
MISSOULA	**Ruby's Reserve Street Inn; 4825 N Reserve Street; Room 700**

NOTE, THERE WILL BE NO EXCEPTIONS TO THIS: By MARCH 3, 1994, as required by ARM 16.18.204, everyone taking examinations must have:

1. completed an application for certification as a water/wastewater operator;
2. paid application (or renewal) fees for fiscal year 94 which ends 6/30/94; and
3. submitted examination registration slips and fees of $5 per examination. (Combination examinations 2A3B, 3A4B, 4A4B and 5A5B require $5 examination fee only.

APPLICATION FEES ARE:

$30 for water (including either or both water distribution or water treatment)
$30 for wastewater

To request application materials or ask for additional information, call Shirley Quick at the certification office at 444-2691 or write:

Water/Wastewater Operator Certification
Water Quality Bureau - P.O. Box 200901 - Helena 59620-0901
PLEASE KEEP THE UPPER PORTION OF THIS NOTICE

- -

EXAMINATION REGISTRATION SLIP

(To be registered for exam, detach and return this slip with appropriate fees by March 3, 1995)

I will take the examination(s) I have checked below at:

☐ Billings ☐ Great Falls ☐ Havre ☐ Helena ☐ Kalispell ☐ Miles City ☐ Missoula

	1	2	3	4	5
A - Water Distribution	____	____	____	____	____
B - Water Plant	____	____	____	____	____
C - Wastewater Plant	____	____	____	____	

NAME: ______________________ SYSTEM: ______________________

ADDRESS: ____

MATH REVIEW FOR CERTIFICATION EXAM

Sponsored by

WATER QUALITY DIVISION
March 17, 1995
6:30 - 9:30 pm

BILLINGS
Eastern Montana College
Student Union Building
Second Floor
Missouri Room

GREAT FALLS
MSU-Northern Great Falls
1211 NW Bypass
Room 101

HAVRE
MSU-Northern
Hagener Science Center
Room 103-104

HELENA
Cogswell Building
1400 Broadway
Room C209
(Use Broadway entrance)

*KALISPELL (TENTATIVE SITE)
Kalispell Wastewater Treatment
Plant Conference Room
2001 Airport Road
(south end of city airport)

*MILES CITY
Miles Community College
2715 Dickinson, Room 106
(Main building)

MISSOULA
Ruby's Reserve St Inn
4825 N Reserve St
Room 700

* * *

These sessions are intended to review basic math for those people with valid applications for the exam being given on Saturday, March 18. **You will never learn everything you need to know at a water school to pass the exam OR to be a competent operator.** The study materials we provide and suggest are designed for self study.

*At the March 1995 water school in Miles City there will be sessions available each day to answer questions you may have from your self study, and to give you an overview of information. Look inside this issue of the Clearwater for more information on the spring water school in Miles City. The sessions in Kalispell will be held from March 15 through March 17 and are taught and sponsored by Montana Rural Water Systems. For more information, contact their office at 454-1151.

Since these sessions are designed for entry level operators, **no CECs will be given** for any of these sessions, either for the Friday evening sessions or the ones available through MRWS and the Miles City water school.

For more information contact Shirley Quick, Water/Wastewater Certification Office, Water Quality Division, 444-2691.

PASSING EXAMINATIONS FOR
FULL CERTIFICATION OR
OPERATOR-IN-TRAINING (OT) 9/30/94

NAME	CITY	CLASS	NAME	CITY	CLASS
JON BENGOCHEA	Glasgow	1Bot	LYLE MAASCH	Hysham	1B
DAVID BIGGAR	Havre	1Bot	DAVID MILAM	Havre	1Bot
DONALD BOLEN	Bozeman	1A	JOSEPH MULLANEY	Butte	1A 1B
CHANCE COLE	Havre	1Bot 1Cot	NORMAN PROCTOR	Havre	1Bot
JACK DALY	Butte	1Cot	LES RIDDLE	Laurel	1Bot
AARON DEHNE	Kalispell	1Cot	RAY SCHONSBERG	Divide	1Bot
THOMAS DOLPH	Helena	1Bot	MICHAEL STAJCAR	Butte	1Bot
SID FREDRICKSON	Coer d'Alene	1C	JOSEPH STRAKA	Whitefish	1Bot
MARK HARMALA	Billings	1A	CHARLES WASSER	Harlem	1Bot
MICHAEL JACOBSON	Great Falls	1Bot	SPENCER WELCH	Bozeman	1Aot
THOMAS KONEN	Kalispell	1Bot	GLENN WINTERROWD	Cutbank	1Bot
TERRY MCLAUGHLIN	Missoula	1C	GERALD WOOSLEY	Bozeman	1C
JON BENGOCHEA	Glasgow	2Aot	BILL HOLZER	Hamilton	2Cot
JERRY BICHA	Bonnor	2C	STAN HUHTALA	Chester	2B
RUDI BIRGENHEIER	Highwood	2C	LYLE RICH	Great Falls	2Bot
WILLIAM BOVEE	Clancy	2Cot	DEWEY ROBERTSON	East Glacier	2Bot
GRANT BURROUGHS	Big Sky	2A3Bot 2Cot	JOHN SALISBURY	Heart Butte	2Bot
JOANNE EMRICK	Kalispell	2A3Bot	JOSEPH STRAKA	Whitefish	2Aot
STEVEN FOURTNER	Forsyth	2Cot	WALTER TABB	Coram	2A3Bot
WILLIAM GEORGE	East Glacier	2Bot	GEORGE THOMAS	Stevensville	2Cot
GENE HARRIS	Anaconda	2A3Bot	GLENN WILLIAMS	Troy	2Bot
JON BENGOCHEA	Glasgow	3Cot	CRAIG OLLINGER	Browning	3A4Bot
CHRIS BULLOCK	Basin	3A4B 3C	ERNIE OLSEN	St. Mark	3C
ROBERT COLEMAN	Columbus	3C	MARK PERRY	Glacier	3A4B
WILLIAM DECKER	Darby	3A4Bot	JACK RICE	Glendive	3C
WILLIAM GEORGE	East Glacier	3Cot	JOHN SALISBURY	Heart Butte	3C
GARY HEGGESET	East Helena	3C	STEVE STORER	Columbus	3A4B
GRADY JENKINS	Whitefish	3Cot	JAMES TEEL	Chinook	3A
MARK LEE	Havre	3C	GORDON TESKE	Havre	3C
RON LEVANDOWSKI	Great Falls	3A4B	RICHARD WELLS	St. Labre	3A4B
LES METZGER	Glendive	3C	GLENN WILLIAMS	Troy	3Aot
WILLIAM MORRIS	Browning	3A4Bot 3Cot	LEE WOLFE	Helena	3Cot
RUDI BIRGENHEIER	Highwood	4AB	GLENN HALL	Browning	4AB
DEAN BOHNSACK	Missoula	4AB	DAVID IACOPINI	Worden	4ABot 4Cot
GORDON CAVANAUGH	Missoula	4AB	DAVE KINSEY	Bozeman	4AB
JERRY CHURA	Trident	4C	CHRYSTEL LINDLEY	Billings	4AB
DOUG CUNNINGHAM	Clancy	4AB	JEFF MCCLEARY	Missoula	4ABot
WILLIAM DECKER	Darby	4C	DAN MILLER	Pablo	4ABot
DANIAL ELLSWORTH	White Sulphur	4C	JOSEPH SCHAD	Troy	4AB
ERNEST FARNES	Frenchtown	4AB	CHARLES SCHEIBE	Warm Springs	4AB
LELAND FLATH	Harrison	4AB	CYNTHIA STEWART	Corvallis	4AB
PAT FORNEY	Hardin	4AB	LEONARD YOUNGMAN	Wolf Point	4ABot
JON GILLEEN	Wisdom	4AB 4C			
DAVID BARNES	Bigfork	5AB	DUANE FITCH	Rae	5AB
JERRY CHURA	Trident	5AB	GARY FRANCE	Belgrad	5AB
CHRIS CONNOR	Missoula	5AB	JERRY HANCOCK	Livingston	5AB

MONTANA WATER ENVIRONMENT ASSOCIATION
1995 PRE-CONFERENCE SEMINAR

DR. GEORGE TCHOBANOGLOUS
UNIVERSITY OF CALIFORNIA - DAVIS

WASTEWATER TREATMENT for the FUTURE

WEDNESDAY MAY 3, 1995
HERITAGE INN, GREAT FALLS

****

Montana communities and wastewater professionals are faced with the combined pressures of:

- non-degradation policy and treatment requirements
- a shortage if infrastructure funding sources
- fast growth in non-developed areas

Dr. Tchobanoglous will present a technical seminar on wastewater treatment options for your community to meet nutrient removal, cold weather and cost considerations.

His presentation will be valuable to all members of the Montana Section of the American Water Works association and Montana Water Environment Association:

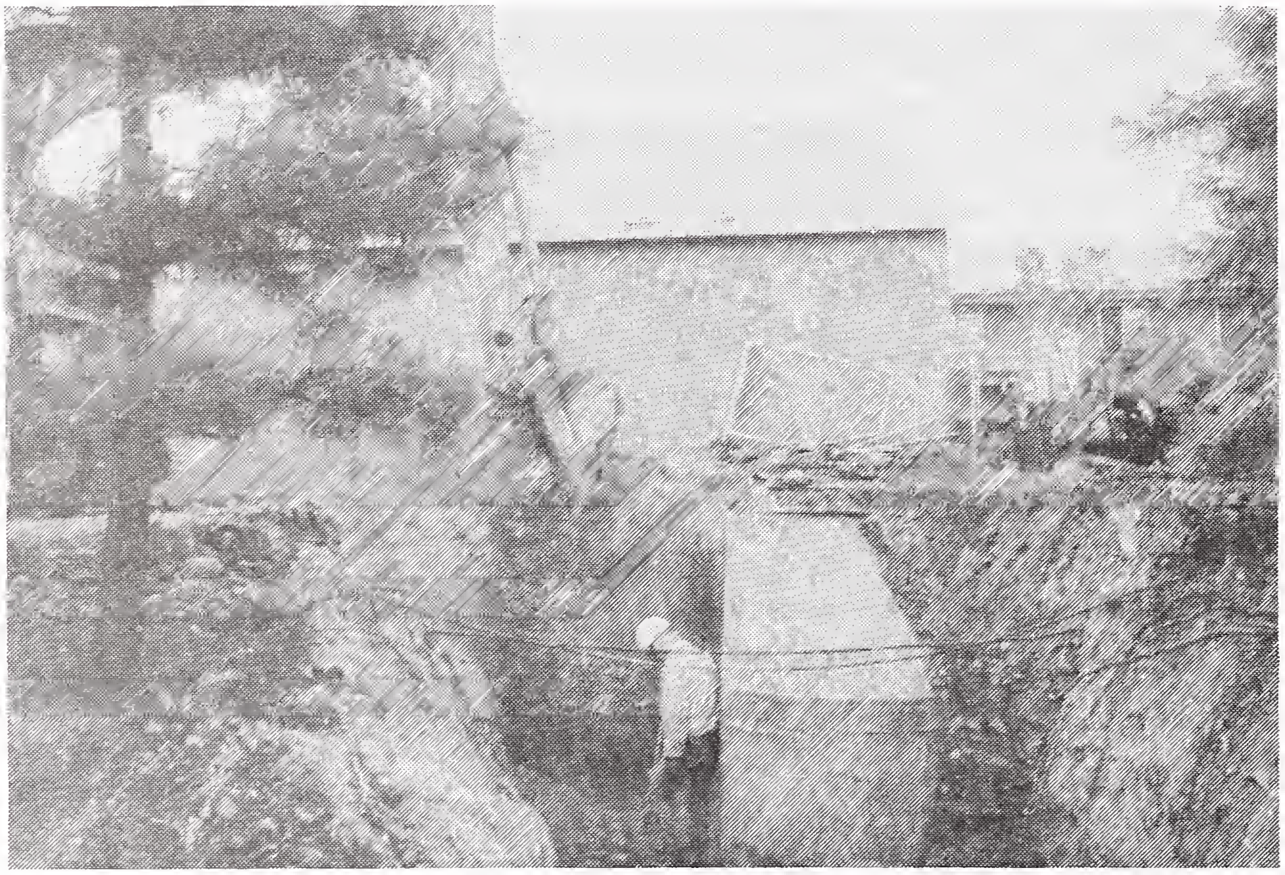
- consulting engineers
- regulatory officials
- city and local government superintendents and engineers
- wastewater and water plant operators

Dr. Tchobanoglous is a highly recommended speaker and widely recognized for his expertise in wastewater. He is a professor of Environmental Engineering in the Department of Civil and Environmental Engineering at the University of California at Davis. His principal research is in wastewater treatment, wastewater filtration, aquatic wastewater management systems, wastewater management for small systems, and solid waste management. He has authored over 225 technical publications including 9 textbooks used in over 200 colleges and universities in the United States and 2 reference books used extensively by civil engineers.

DON'T MISS THIS IMPORTANT SEMINAR!

What's Wrong With This Picture?

Written by Rick Cottingham, Co-Chair MSAWWA Safety Committee



On a cool late September morning, in Montana's Capital Complex, this scene caught the eyes of numerous Water Quality Staff on their way to work. I received a minimum of a dozen phone calls before 9:00 a.m. that morning.

Some wanted it reported to the Occupational Safety and Health Association (OSHA) immediately. Others were concerned for the man's safety who was the hole. The others thought it would make a good safety article for training. The nice thing about this concern is they all felt strongly enough about it to take some action!

Helena was unfortunately the site of a trench fatality this summer. A trench that authorities have estimated near 15 feet deep, unshored, collapsed and covered the man under five feet of earth and rock, two dump truck loads of it broke off one of the trenches walls. It took workers 35-40 minutes to reach Bret Kolden who was pronounced dead at the scene. Bret was married and the father of a fifteen month old child. The work was part of a project to upgrade the City of Helena's Hale reservoir project. Whenever you work in a trench or excavation there's a potential for injury or death due to cave-ins. This is true whether working for days in a 12-foot trench or just jumping into a 4-foot trench to help align a joint. A cave-in of a 5-foot section of the trench wall will dump more than 9 tons of dirt into that trench-6-tons from the natural ground and 3-tons from the spoils bank. Next time your down in an unprotected trench, think about those 9-tons of dirt. Doubling the depth can increase the weight by at least four times.

To prevent accidents and injuries caused by cave-ins, there are two things to consider:

1) You have to know how cave-ins happen and what makes them more likely.

2) Know what protection is available, either to prevent the cave-in or injury in case it happens.

You must know things like soils strength, cohesiveness, moisture, lack of moisture, where thawing weakens soils and freezing strengthens soils,and if there have been any recent excavations.

Consider things like downward forces,which is the weight and location of the spoils bank. The depth of the trench also influences this second half of the cave-in equation. Wet soils can be more than half again as heavy as dry soils. Spoils banks should be at least 2-feet away from the trench to avoid sloughing or sliding back into the trench.

Take into consideration vibration in the area from blasting, equipment operating, or traffic.

There are three means of trench cave-in protection: Required in any trench 5-foot deep or greater!

1) Sloping - excavation of the walls of the trench at an angle so downward forces of the soil are never allowed to exceed the solid cohesive strength.

2) Shielding - a steel box open at the top, bottom, and the ends. The box is moved along the bottom of the trench as work progresses.

3) Shoring - if properly installed prevents the cave-in of excavation and trench walls. Basically a framework support system of wood, metal, or both.

Always have a person on top of the trench watching for changing factors, traffic, or to spot cave-ins before or when they happen. They might know where to dig should someone get trapped.

Lets recap the areas we've discussed. First, the most important factors to consider in safeguarding against cave-ins are type of trench and soil. Second, remember when you double the trench depth you can increase the weight of the soils by at least four times. Remember the three ways to prevent a trenching disaster: sloping, shielding, and shoring.

Finally, the professionals advise you to learn how to protect yourself. DON'T WORK ALONE!! If your caught in a cave-in, yell and cover your face with your arms as you go under. Then here's the clincher, but essential, remain calm and don't struggle while you wait for rescue.

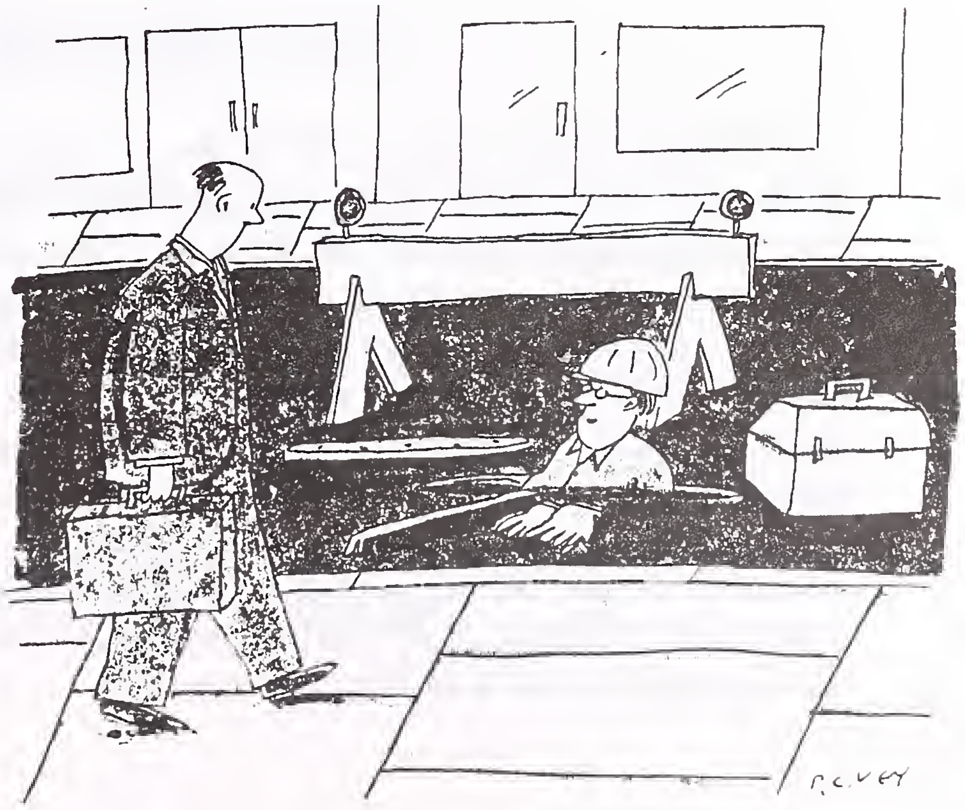
Don't enter into an unsafe situation FOR ANY REASON! Your co-workers might be able to get you out in time, but then again they might not!

Take a Competent Persons Course if your going to be working in trenches. This article only points out some of the many safeguards that you need to know to work safely in a trench or excavation.

Keep your eyes and your ears open!

As this issue of the Big Sky Clearwater was being finalized, the Helena Independant Record ran another interesting article following-up on the accident described. It read as follows: "Mainline Construction was cited Thursday, December 29, 1994 by OSHA for willfully violating two federal job safety laws at the site. Mainline failed to provide adequate sloping, shoring, shields, or other protection from trench cave-ins before placing the worker in the trench. The Company also failed to keep the spoils piles at least two feet from the edge of the trench. Trenching accidents leading to serious injury and loss of life are clearly preventable and employers who fail to take the necessary precautions can expect to face strong enforcement action from OSHA. Osha recommended a fine totaling $140,000 in penalties for the safety lapses".

Although this fine is minute compared to the TRUE value of a human life having been sacrificed, for whatever the reason precautions weren't taken that morning. Everyone needs to stop and think before entering an excavation, trench, or a confined space. Let's all stay alert practice good safety habits!



"Hey, want to see some sewage?"

Storm Water

What's The Big Concern

Roxann Lincoln, WQD

Many people don’t realize that the water entering a municipal storm sewer system is not treated. This storm water is routed to the nearest lake, river, or stream. So what is the big concern? Storm water and storm sewer systems can contain a number of pollutants which enter the nearest surface water body.

Common Pollutants found in storm water from cities generally refereed to as urban runoff are sediment, bacteria, heavy metals (such as Lead, Zinc, Copper, and Arsenic), oil and grease, nutrients (such as Nitrogen and Phosphorus), and pesticides residues. In addition, many people thinking this water is treated, dump waste oil, paints, solvents, and other materials down the storm drain. The result is that our rivers and streams are beginning to show the affects of this source of pollution.

The Department of Health and Environmental Sciences (DHES) Water Quality Division is looking to work with municipalities statewide in an effort to educate the public concerning this pollution problem. The Water Quality Division has new bumper stickers available free of charge to cities or organizations interested in doing a public awareness program concerning storm water issues in their community. The bumper stickers state "Use Your Brain, Not the Drain". For more information contact Roxann Lincoln at (406) 444-2406.

"HOUSEHOLD BLEACH"

The Drinking Water Section of the Water Quality Division is informing public water supply systems about the use of **household bleach** as a full time disinfectant. The use of chlorine based disinfectants must meet DHES Standards for chemicals used in water treatment. "Chemicals shall meet AWWA standards and ANSI/NSF Standard 60, where applicable". Owner/operator, if your are using **household bleach** as a full time disinfectant you must discontinue the use of this product as it is not NSF approved. Check to be sure that the chemicals you are using meet these standards. Chemicals that are not NSF approved may cause or contain by-products that could be harmful to the public’s health. If you are using ’**household bleach**" to disinfect a well, distribution system, or storage tank be sure to thoroughly flush out the bleach before any consumer usage. Please contact your local Water Quality Division for assistance; in Helena at 444-4549; in Billings at 657-2616; and in Polson at 883-5861. Your local chemical supplier can also provide you with product information.

WELLHEAD PROTECTION NEWS

Carole Mackin recently left the Wellhead Program to work part-time for DHES assisting communities in setting up local water quality protection districts. Joe Meek, formerly or the Enforcement Section, has moved into the Wellhead Program.

Joe's previous work in enforcement took him to many of the small water systems in the west half of the state. Many operators may have seen Joe and his slides at Water School, showing common and not so common problems found at various small water systems from central Montana to the Idaho line. His broad background with public water supplies and water pollution control will help him provide valuable assistance to PWSs in their wellhead protection efforts.

****

The community of Clyde Park recently submitted their Wellhead Protection Plan to DHES for certification. Nina Denzin is to be congratulated for her efforts to put the plan together. It is a good example of using numerous and varied resources to look at the communities' water source and then plan for the future by providing source protection. Several other communities around the state are near completion of their plans, a few others have completed their delineation efforts, and many have expressed interest in setting up a plan.

The most difficult step in setting up a Wellhead Protection Plan seems to be the first one; getting a group of community members together to decide how to organize the effort. Operators may be very involved at this stage because you folks know the language and have the necessary technical knowledge to recognize the many potential threats to your source. If you haven't given it much thought before, give it another shot. It can be a great mechanism to generate positive interest in your PWS and in the long run will provide very valuable protection for the community resource.

Joe may be able to assist operators or other interested parties in taking that first step by giving a presentation to local governments community groups describing the basics of WHPPs. You can call 444-2406 for additional information.

MONTHLY CHLORINE RESIDUAL DETERMINATION FORMS

by Rick Cottingham

It seems that there has been some confusion as to how to properly complete the Monthly Chlorine Residual Determination forms.

I will going to explain in this article what needs to be submitted each month. By accomplishing a few simple tasks will insure that the system is given credit for monitoring month. This also avoids the unpleasant experience of your system receiving a Monitoring Violation letter which requires public notification. Saving us all considerable time and embarrassment.

First, be sure that you have an adequate supply of these forms on hand. If you notice your supply getting low, staple a note to the next monthly report that you submit and we will see that you receive another years supply. You may also call the Water Quality Division (WQD) at 406-444-4549 to replenish your supply. Please ask for the correct form.

When filling out this form **Please** follow these steps:

1) Month ______.
This is the month that the system is being monitor.

2) System Name_______________. The **name and location** that your system is licensed with the WQD. (Town of Choteau, Valleyhigh Trailer Court - Plentywood, Pastdue Bar - Darby, etc.)

3) Year ______.
This is the current year of monitoring.

4) PWS ID # ______.
This is the public water system identification number that insures that your sampling is credited to your system. (00316, 62413, etc.) Your PWS ID # is located on the monthly bacti form.

5) Submitted by ______.
This is the certified operator or manager of the public water system. The person in responsible charge. Please make this

legible and in ink.

6) Under titled columns Chlorine Residual at Point of Application.
A good example here would be Well #1, Well#2 and Well #3. If you have more than 3 sources, please use multiple forms. If you call it the east well, west well, or 001, 002, and that's what your system site plan reads, use that. **Make it clear** which source it is, test the chlorine residual daily at this point, and record the residual disinfectant in the source column. If you treat more than one source, test **all** points where chlorine is applied.

7) Under titled column Rotated Chlorine Residual in System.
This is the test location in the distribution to insure your entire distribution system is holding an adequate residual for disinfection. If you use more than one pressure zone, then you need a residual check in each zone. If you have a complete blend of sources in the distribution then one test is acceptable. Use multiple forms as needed. **Rotate this point** in your system to cover the entire distribution system **weekly**.

8) If you are a **Non-Transient Non-Community system** note this on the form!

If you are a surface water system that chlorinates you are required to have a minimum of 0.2 mg/L chlorine residual in the distribution.

All systems that chlorinate are required by law to monitor the residual at the **point of application and in the distribution system daily** unless you have been approved for reduced monitoring by the Water Quality Division.

Please review your form before you drop it in the mail. A little extra care will assure that your system receives proper credit for monitoring.

If you have any questions on completing this form, please call the Water Quality Division at 444-4549.

SMALL TOWN BLUES

by Scott Anderson, WQD

Montana is a state with an abundance of small communities. There are an estimated **350** unincorporated communities in the state and **128** incorporated cities and towns. Of those 128, only **9** communities have populations greater than 10,000 and only **29** have populations greater than 2500. Small communities certainly have advantages over big cities--lower crime, less hassle, you know your neighbors and you have a greater sense of belonging. By most measures, the quality of life is better.

Yet in some aspects, things may not be better. Residents in small communities may not have the same quality of medical care that you might receive in a larger town. The drinking water in a community may not be treated as well as that delivered elsewhere simply because the town lacks the financial, technical and administrative resources to do a comparable job. For similar reasons, the wastewater treatment plant may also not function as efficiently as the big mechanical plant. Lastly, residents may find that they have to pay a lot more for basic services such as water, sewer and solid waste service in the small town.

Congress seems to be aware of the problem and in 1992 created the Small Town Environmental Task Force Advisory Committee composed of 14 members, 12 of which are from towns with populations less than 2500. This task force recently presented a report to the Administrator of the EPA on their findings regarding unique problems in small communities. Excerpts from the report on why small towns are different are as follows:

First, small towns, as a general rule, have no full-time officials. *One state represented on the task force has 310 municipalities; 297 have fewer than 5,000 people. There are two full-time mayors in the state (for one town of 50,000 population and another with more than 100,000 population). There are four full-time city council members. 'All the remaining mayors and council members are part-time, and have other, full-time, life-supporting occupations.*

On a national basis, 86% of the 35,000 total governments in the United States contain fewer than 10,000 people. Ninety million people in the United States live in jurisdictions under 10,000 population; 74 million live in jurisdictions under 2,500. One third of all governments in the United States have no employees at all.

Second, small towns, as a general rule, have little or no professional staff. *Such towns may have a clerk, who may or may not have received specialized training. Routinely, small towns do not have planning offices or engineering staffs. The wastewater operator may have been trained by the state and may, in addition to operating the wastewater system, perform other municipal functions including maintenance and some law enforcement.*

A key factor to these two points is continuity, because town officials change, as do the bureaucrats who regulate them. At just about the time that agency officials are getting along with the current group of town officials, an election can cause them all to be thrown out of office. Then the whole education process has to start all over again. The loss of continuity threatens the communication linkages that have developed among local, state and federal officials. When that happens, regulatory compliance becomes a nightmare. Any good will developed between the regulators and the town may be lost in this situation.

There is often a reluctance on the part of potential candidates to run for office and to be associated with unpopular environmental projects. Often elections are held without any candidates officially running for office. This means that the people who will address the challenges of environmental protection are write-in candidates.

Third, small towns, as a general rule, cannot attract or support private technical businesses; accordingly, there is no private capability to supplement governmental capacity. *There will usually be no registered engineer in a small town, for example, nor will there be an engineering firm. There will be no laboratory to perform required tests. One member of the task force has no certified laboratory in her entire state.*

Fourth, there will be few, if any, training opportunities. *Small towns do not generally contain universities or significant technical training capabilities. Some progress is being made in this area in two respects: first, state governments have taken on some of the training responsibilities. Second, in some areas interactive television networks offer an alternative form of training. But training opportunities will always be in short supply for small towns because training capacity does not exist locally.*

The result of these four facts is that technical and bureaucratic capacity is severely limited in small towns. The part-time mayor is limited in ability to understand what requirements must be met; the council is limited in their ability to understand the significance of what they are being asked to do; and there are limited or no staff or private resources upon which to draw.

Fifth, almost by definition, small towns have severely limited tax bases. *In one state represented on the task force, a small town which needed a loan for water and wastewater projects found that the amount of the loan would have exceeded the entire assessed value of the town.*

Sixth, small towns, because of limited opportunities for young people, tend to have disproportionately older populations. *On average, older persons, retired and/or living on fixed incomes -- especially in rural areas -- tend to be poorer than the population as a whole. Their marginal capacity to support increased spending, for any public purpose, is quite limited.*

Seventh, small towns tend to have fragile, heavily concentrated economic bases. *Thus, the small town gasoline station faced with the cost of upgrading underground storage tanks may be the only station in town. Should the owner not succeed in coming into compliance, the result of the loss is not a reduced competitive base; it may be the total loss of the services.*

This can also have major impacts on individuals. Station owners cannot, in some instances, sell their businesses because of the cost to clean up the areas where previous owners have discarded petroleum products on the property. In some instances, the cost would exceed the sale price of the property. This burden causes loss of retirement income.

Eighth, infrastructure costs fall disproportionately on small towns because entry level costs must be distributed over a smaller base. *Thus, the cost of a wastewater system for a population of 1,000 is not one percent of the cost of such a system for a population of 100,000; it is substantially more. When those costs are distributed over a smaller number of households, the per family costs escalate -- perhaps as much as ten times. EPA is currently considering combined sewer overflow rules. This lack of economies of scale is a well recognized principle in the development of rural drinking water systems. Unfortunately, this does not appear to have been a consideration when the federal pollution abatement grant programs were being administered.*

Ninth, limited tax bases mean limited budgets. *Small towns routinely operate with budgets smaller than $100,000 per year. In many instances, the amounts will not exceed $50,000. These budgets are so small that the cost of additional drinking water testing, for example, may be ten percent, or higher, of the total annual budget.*

Many small jurisdictions do not have access to capital at reasonable rates. This may occur because of costs of obtaining bond ratings, thereby causing the community to have a "non-investment grade" rating with accompanying higher rates. The problem may arise from limited resources or from state constitutional limitations on indebtedness.

Many small towns cannot get local approval to expend funds for programs which go beyond what they believe is necessary.

Tenth, a disproportionately older population may require different forms of health protection. *Typically, environmental protection is based on health risks that may or may not come to fruition for ten or twenty years. The older population of the typical small town has many more immediate health threats with which it must cope.*

Eleventh, small communities often lack political strength, both on the state and national levels. *Small communities perceive that they are required to meet higher environmental standards than large communities because they cannot negotiate compliance standards through the exercise of political power. This lack of political strength may affect the distribution of resources as well as the granting of exemptions and deviations.*

Message From Barry Damschen
Director for Montana WEA

Over the past few years, several significant and exciting changes have taken place in our Federation. From 1991 to 1993 the long range planning committee conducted an in depth study to develop a "vision" that would direct the course of the organization for the next ten years or so. In October, 1993 the Board of Control approved the vision "The Federation will be the Pre-eminent Organization Dedicated to the Prevention and Enhancement of the Global Water Environment". Correspondingly, the following principles were developed to purse this vision: 1) provide technical information to a worldwide audience 2) expand quality services to our members, and 3) build alliances with other organizations.

In addition to the development of the Vision, the name of our organization was changed from the Water Pollution Control Federation (WPCA) to the Water Environmental Federation (WEF). This was done to promote the many new fields that the Federation is now actively involved with including solid & hazardous wastes and surface and groundwater pollution to augment the wastewater field that the Federation was built on and is still deeply committed to.

Over the next two year period, the Board of Control for the Federation will take the next planning step when they conduct a detailed governance study. This study will primarily examine the governing processes and structures which will support the progress towards the new vision. These aspects will include policy, strategic direction and priorities, management oversight and allocation of resources.

As many of you may know, the Montana Water Environmental Association is one of 65 Member Associations (MA's) of WEF. Over the past three years, our Board of Directors also developed a long range plan to direct our association into the future. Scott Anderson chaired that committee and did an excellent job coordinating these efforts.

As I complete the final year of my 3 year term as Montana's Director on the Federations' Board of Control, I see the need for all of our members to become much more active. It seems like only a handful or two of individuals are the "movers and shakers" in our organization which is not enough if we are to continue to function effectively. The best way to become involved in our association is to: 1) attend the annual joint WEA - AWWA which is coming up in Great Falls in May; 2) sign up for a committee or two that interests or affects you in some way and 3) become active on the committee(s). I joined our association 19 years ago and can truthfully say that personally and professionally I have gained a great deal of knowledge, training and satisfaction through my involvement with the organization. As I complete my term I look forward to seeing each of you in Great Falls this May at the Joint Conference and hope that you will become an active member in the Montana Water Environment Association.

Water Quality Division
Department of Health and
Environmental Sciences
1400 Broadway
P. O. Box 200901
Helena, Montana 59620-0901

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